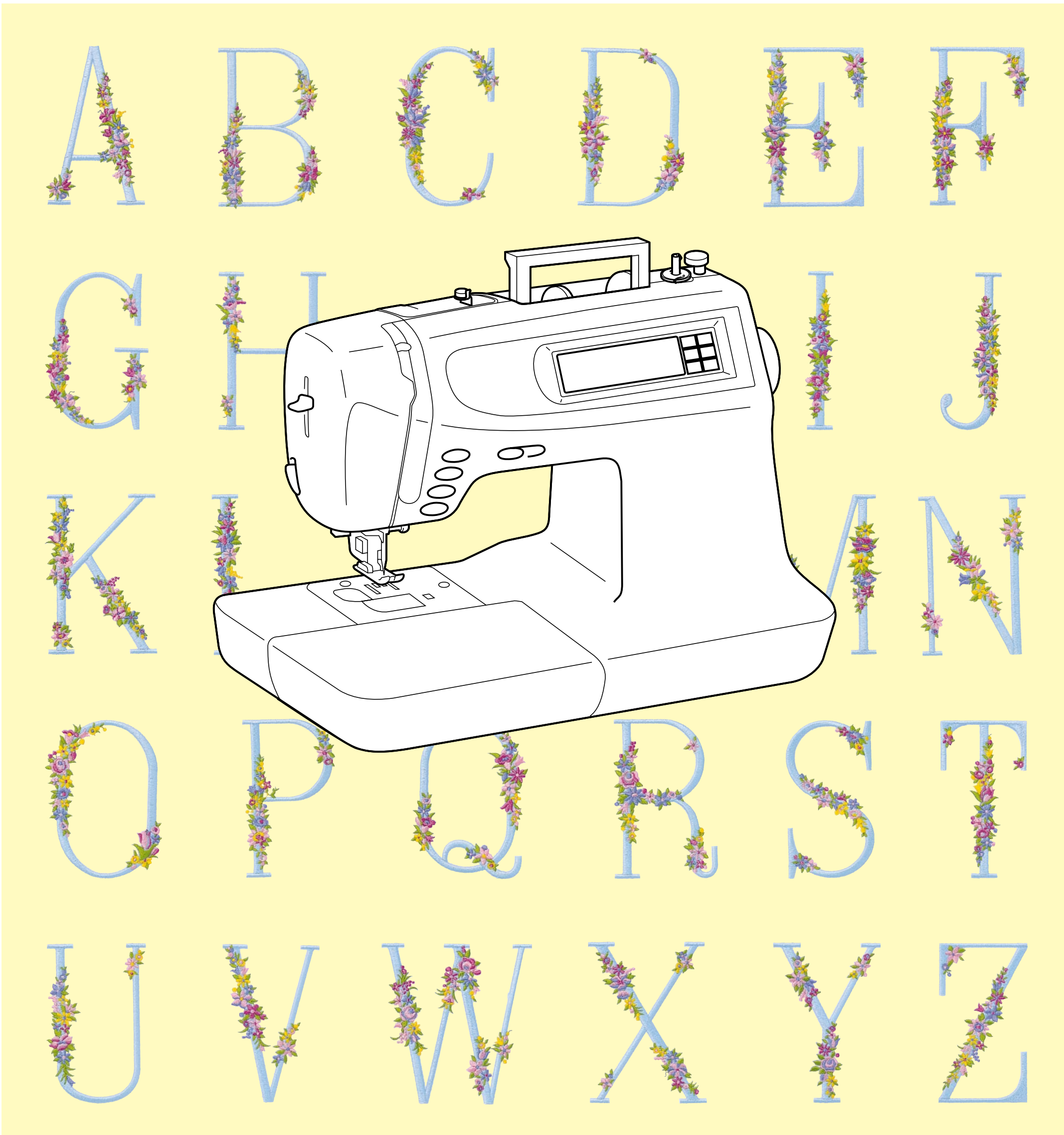
SEWING MACHINE



OPERATION MANUAL

brother®

IMPORTANT SAFETY INSTRUCTIONS

When using this machine, basic safety precautions should always be taken, including the following:

Read all instructions before using this sewing machine.

DANGER – To reduce the risk of electric shock:

1. The machine should never be left unattended while plugged in. Always unplug the machine from the electrical outlet immediately after use and before cleaning.
2. Always unplug the machine before changing the light bulb. Replace the bulb with the same type (rated 12 V, 5 W).

WARNING – To reduce the risk of burns, fire, electric shock, or injuries:

1. Do not allow this machine to be used as a toy. Close attention is necessary when the machine is used by or near children.
2. Use this machine only for its intended use as described in this manual. Use only accessories recommended by the manufacturer as contained in this manual.
3. Never operate this machine if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or if it has been dropped into water. Return the machine to the nearest authorized dealer or service center for examination, repair, or electrical or mechanical adjustment.
4. Never operate the machine with any of its air openings blocked. Keep ventilation openings of the machine and foot controller free from the accumulation of lint, dust, and loose cloth.
5. Never drop or insert any object into any of the machine's openings.
6. Do not use this machine outdoors.
7. Do not operate this machine where aerosol (spray) products are being used or where oxygen is being administered.
8. To disconnect, set the main power switch to the " **O** " (off) position, and then remove the plug from the outlet.
9. Do not unplug the cord by pulling on it. To unplug the power supply cord, grasp the plug, not the cord.
10. Keep fingers away from all moving parts. Special care is required around the machine's needle.
11. Always use the proper needle plate. The wrong plate can cause the needle to break.
12. Do not use bent needles.
13. Do not push or pull the fabric while stitching. This may deflect the needle causing it to break.
14. Switch the machine to the " **O** " (off) position when making any adjustments in the needle area, such as threading the needle, changing the needle, threading the bobbin, or changing the presser foot.
15. Always unplug the machine from the electrical outlet when removing covers, lubricating, or making any other user-serviceable adjustments mentioned in this operation manual.
16. This sewing machine is not intended for use by young children or infirm persons without supervision.
17. Young children should be supervised to ensure that they do not play with this machine.

SAVE THESE INSTRUCTIONS

This machine is intended for household use only.

FOR USERS IN THE UK, EIRE, MALTA AND CYPRUS ONLY

If your embroidery machine is fitted with a 3-pin non-rewireable BS plug, please read the following.

IMPORTANT

If the available socket outlet is not suitable for the plug supplied with this equipment, the plug should be cut off and the cable should be fitted with an appropriate three-pin plug. With alternative plugs, an approved fuse must be installed in the plug.

Note
The plug severed from the power supply cord must be destroyed, as a plug with bare flexible wires is hazardous if engaged in a live socket outlet. In the event that the plug fuse is replaced, use a fuse approved by ASTA to BS 1362, i.e. carrying the ASTA mark, rated as marked on plug.

Always replace the fuse cover. Never use plugs with the fuse cover removed.

WARNING
DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL, WHICH IS MARKED WITH THE LETTER ‘E’, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR YELLOW.

The wires in this mains lead are coloured in accordance with the following code:

Blue	Neutral
Brown	Live

As the colours of the wiring in the main lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

The wire which is coloured blue must be connected to the terminal which is marked with the letter ‘N’ or coloured black or blue.

The wire which is coloured brown must be connected to the terminal which is marked with the letter ‘L’ or coloured red or brown.

THANK YOU FOR PURCHASING
THE PC-6500 COMPUTERIZED SEWING MACHINE

Your machine is the most advanced, computerized home-use sewing machine available.
To fully enjoy all the features incorporated into it, we suggest that you study this manual.

PLEASE READ BEFORE USING THIS MACHINE

For safe operation:

1. Be sure to keep your eye on the needle while sewing. Do not touch the pulley, thread take-up, needle, or other moving parts.
2. Remember to turn off the main power switch and unplug the cord when:
   - operation is completed
   - replacing or removing the needle or any other parts
   - a power failure occurs during use
   - maintaining the machine
   - leaving the machine unattended
3. Do not store anything on the foot controller.
4. Plug the machine directly into the wall. Do not use extension cords.

For a longer service life:

1. When storing this machine, avoid direct sunlight and high humidity. Do not store the machine beside a space heater, iron, or other hot objects.
2. Use only neutral soaps or detergents to clean the case. Benzene, thinner, and scouring powders can damage the case and machine, and should never be used.
3. Do not drop or hit the machine.
4. Always consult this operation manual when replacing or installing any assembly, the presser foot, the needle, or other parts to assure correct installation.

For repair or adjustment:

In the event that a malfunction occurs or adjustment is required, first follow the troubleshooting table in the back of this operation manual to inspect and adjust the machine yourself. If the problem persists, please consult your nearest authorized service center.

CONTENTS

CHAPTER 1

SETTING UP

CHAPTER 2

SEWING

CHAPTER 3

UTILITY STITCHES

CHAPTER 4

MY CUSTOM STITCH™ (CREATE YOUR OWN STITCH DESIGNS)

CHAPTER 5

EMBROIDERING

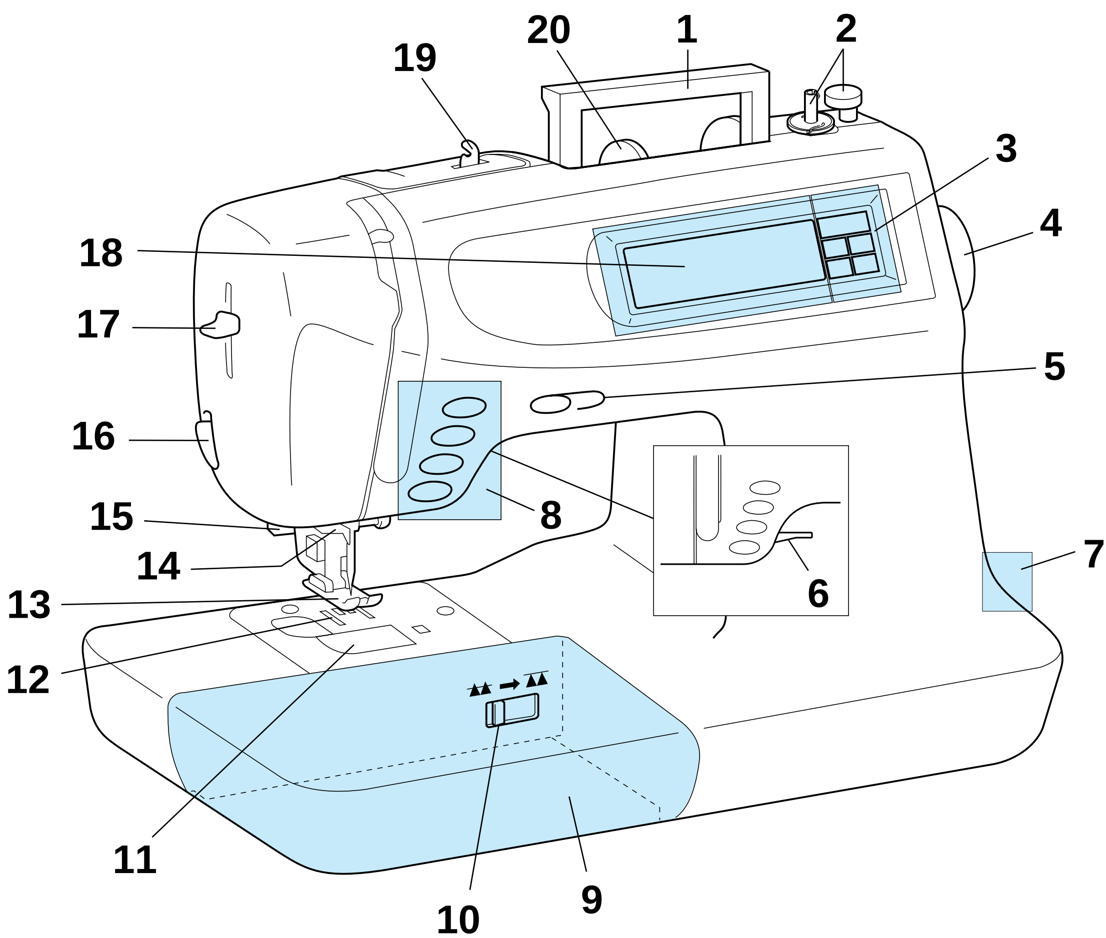
MAINTENANCE

ERROR MESSAGES

SEWING CHART

PATTERNS (PROGRAMMED IN MACHINE)

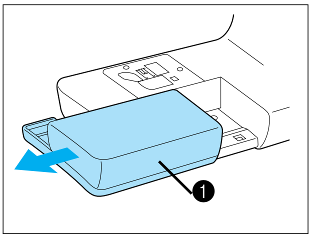
PRINCIPAL PARTS



1 Handle
2 Bobbin winder
3 Selection keys (Refer to page 9 for more details.)
4 Balance wheel
5 Sewing speed controller
6 Presser foot lever
7 Main power switch
8 Operation buttons (Refer to page 9 for more details.)
9 Flat-bed attachment with accessory compartment
10 Feed dog position switch
11 Bobbin cover
12 Feed dogs
13 Presser foot
14 Needle threader
15 Buttonhole lever
16 Thread cutter
17 Needle threader lever
18 LCD (liquid crystal display)
19 Thread guide for bobbin winding
20 Spool cap

FLAT-BED ATTACHMENT

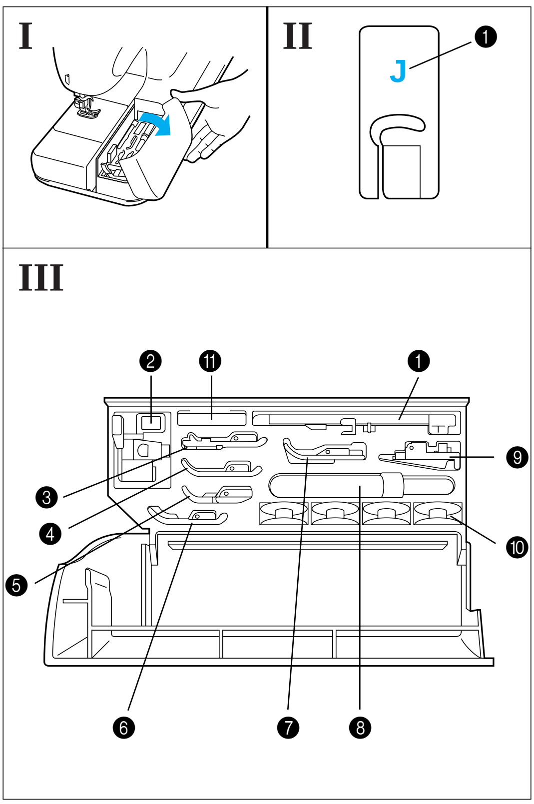
Removing the flat-bed attachment



With the flat-bed attachment removed, sewing tubular pieces, such as sleeves and pant legs, or hard-to-reach areas of the garment is easier. To remove the flat-bed attachment, pull it straight out to the left of the sewing machine.

❶ Flat-bed attachment

Accessory compartment



I To open the accessory compartment, tilt its lid toward you.

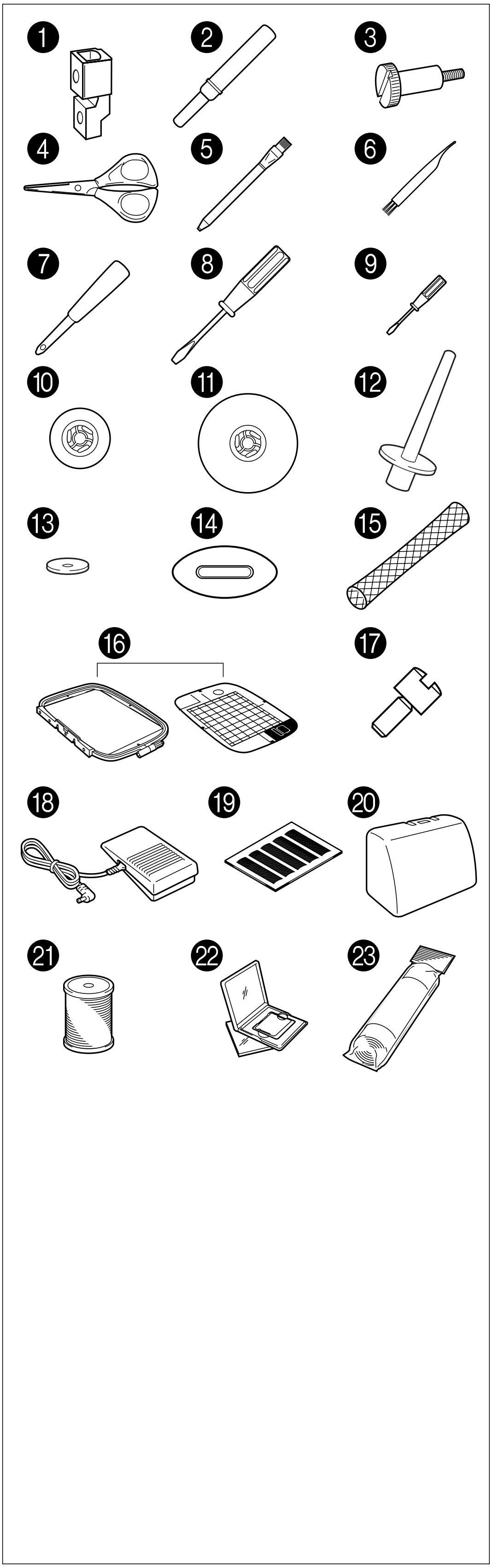
II Each presser foot is marked with a letter.
❶ Presser foot code

III Compartment accessories
The location of each accessory is shown in figure **III**. Only use the accessories designed for this machine.

No.	Part Name	Part Code
❶	Buttonhole foot **A**	X57789-101
❷	Embroidery foot **Q**	XA5891-101
❸	Overcasting foot **G**	X51162-001
❹	Monogramming foot **N**	X53840-301
❺	Zipper foot **I**	X59370-051
❻	Zigzag foot **J**	137748-101
❼	Blind hem foot **R**	X56409-001
❽	Seam ripper	X54243-001
❾	Button sewing foot **M**	130489-001
❿	Bobbins*	136492-101
⓫	Needle set	X58358-001

*Only use the plastic bobbins supplied in the accessory compartment or as additional accessories.

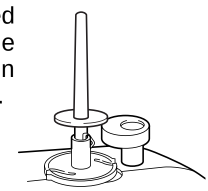
ADDITIONAL ACCESSORIES



No.	Part Name	Part Code
1	Presser foot adapter	XA6027-001
2	Seam ripper	X54243-001
3	Screw[a] (for securing presser foot)	XA5904-051
4	Scissors	184783-001
5	Chalk pen	184944-001
6	Cleaning brush	XA4527-001
7	Eyelet punch	135793-001
8	Screwdriver (large)	X55467-051
9	Screwdriver (small)	X55468-051
10	Spool cap (small)	130013-003
11	Spool cap (large)	130012-003
12	Extra spool pin[b]	XA3336-051
13	Spool felt	X57045-001
14	Disc-shaped screwdriver	XA2005-051
15	Spool net[d]	127610-000
16	Embroidery set (large)	SA423
17	Screw (for securing adapter)	XA4813-051
18	Foot controller	XA3931-051
19	Grid sheet	X80948-002
20	Hard case	XA5555-001
21	Bobbin thread	XA8375-002
22	Embroidery cards	SA298
		SA299
23	Stabilizer material	X81175-002

[a] Use the same screw for installing both the walking foot and the optional side cutter.

[b] The extra spool pin provided as an accessory should be inserted onto the bobbin winder shaft when it is used.



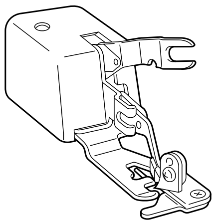
[c] When using the walking foot, refer to the instruction sheet included with this operation manual.

[d] When using special threads that quickly wind off the thread spool, place a net over the spool before sewing.

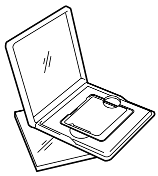
Note (For U.S.A only)
Foot controller: Model N5V
This foot controller can be used for this machine model PC6500.

OPTIONAL ACCESSORIES

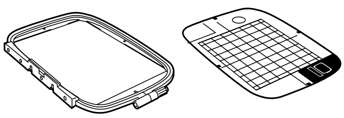
1



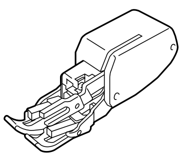
2



3



4



No.	Part Name	Part Code
1	Side cutter	X80943-001
2	Embroidery cards[a]	
	No. 3 Dinosaur	SA300
	No. 6 Moskowitz's World	SA303
	No. 7 Country Life	SA304
	No. 8 Holiday	SA305
	No. 9 Hobby Craft	SA306
	No. 10 Monogram Emblem	SA307
	No. 11 Frame	SA311
	No. 12 Transportation	SA312
	No. 13 Sports Emblem	SA313
	No. 14 Large Floral	SA314
	No. 15 Cute Kids	SA315
	No. 16 Dogs & Cats	SA316
	No. 19 Marine	SA319
	No. 20 Petite Designs	SA320
	No. 21 Needlework	SA321
	No. 23 White on white	SA323

No.	Part Name	Part Code
2	No. 25 Equestrian	SA325
	No. 27 Birds	SA327
	No. 28 Christmas	SA328
	No. 29 Lace	SA329
	No. 30 Wildlife animals	SA330
	No. 31 Large flower II	SA331
	No. 32 Musical instrument	SA332
	No. 33 Trees	SA333
	No. 35 Cats & dogs II	SA335
	No. 36 Fruits & vegetables	SA336
	No. 37 Appliqué alphabet	SA337
	No. 38 Angel	SA338
	No. 39 Doll face	SA339
	No. 40 Sports 3	SA340
	No. 41 Renaissance	SA341
	No. 42 Farm	SA342
	No. 43 Victorian	SA343
	No. 44 Lace II	SA344
	No. 45 Chain Stitch	SA345
	No. 46 Australian Animal	SA346
	No. 47 Butterfly	SA347
	No. 48 Australian Flower	SA348
	No. 49 Folk Art	SA349
	No. 50 Fairy and Floral	SA350
3	Extra-large frame[b]	SA425
4	Walking foot[c]	X81064-001

[a] This unit cannot be used together with memory card S1.

WARNING
Embroidery cards purchased in other countries may not be compatible with your machine.

[b] Refer to pages 115 through 118 for details on embroidering using the extra-large embroidery frame.
[c] When using the walking foot, refer to page 15.

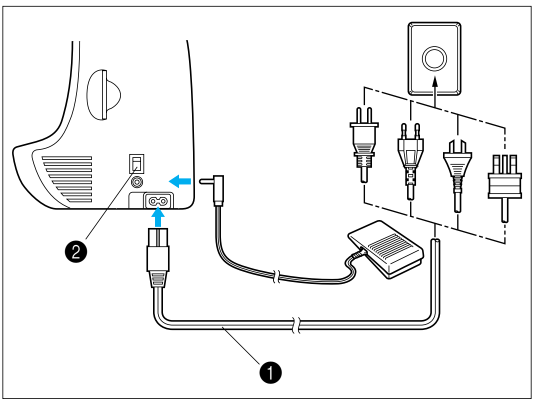
POWER SUPPLY

WARNING

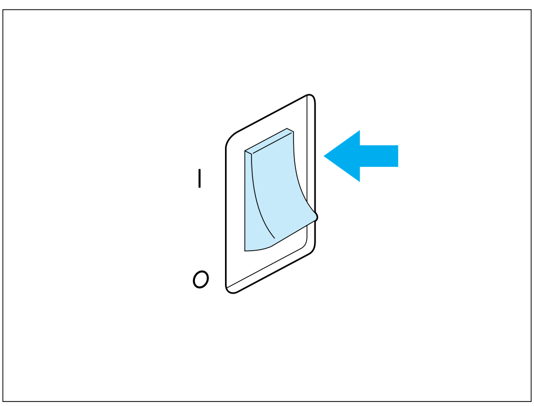
- **When leaving the machine unattended or when it is not being used, turn off the main power switch on the side of the machine, then remove the plug from the wall outlet.**

CAUTION

- **Do not use this sewing machine with extension cords or multi-plug adapters, otherwise a fire or an electric shock may occur.**
- **Do not use wet hands to remove the plug from the wall outlet, otherwise an electric shock may occur.**
- **When unplugging the power cord, turn off the main power switch of the machine, and then grasp the plug to unplug the cord. Pulling on the cord may damage it or cause a fire or an electric shock.**
- **Do not allow the power cord to be cut, damaged, modified, forcefully bent, pulled, twisted or bundled. In addition, do not place heavy objects on the cord or subject it to heat, otherwise the cord may be damaged or a fire or an electric shock may occur.**
  If the power cord or plug is damaged, contact your nearest authorized dealer or service center.
- **When servicing the machine, or when removing covers or changing bulbs, unplug the sewing machine or disconnect the electrical supply.**
- **If the machine is not to be used for a long period of time, unplug the power cord, otherwise a fire may occur.**
- **For U.S.A. only:**
  This appliance has a polarized plug (one blade wider than the other). To reduce the risk of electric shock, this plug is intended to fit in a polarized outlet in only one way.
  If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not modify the plug in any way.



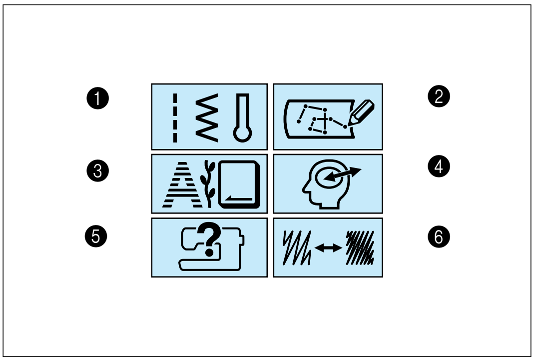
1. Pull out the power supply cord and insert the plug into a wall outlet.
   ❶ Power supply cord
   ❷ Main power switch



2. To turn on the machine, set the main power switch to “ **I** ”.
   To turn off the machine, set the main power switch to “ **O** ”.

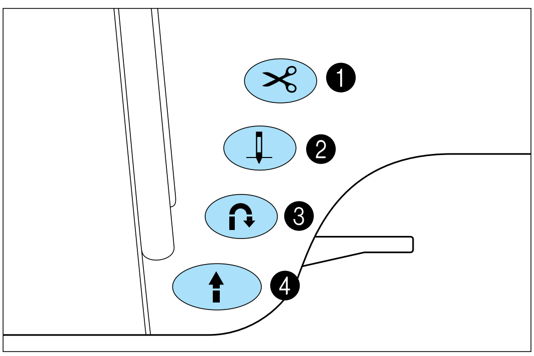
CONTROLS

Selection keys



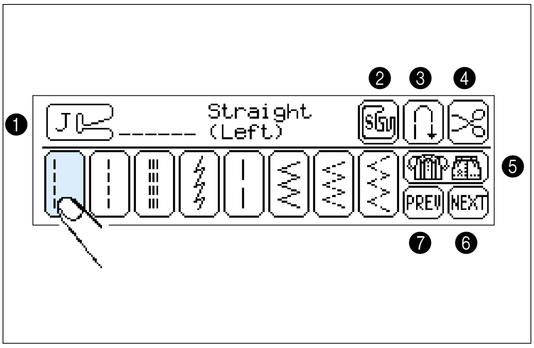
1. **SEWING** key
   Press this key to display a screen that allows you to select utility stitches for sewing straight stitches, buttonholes, etc. (Refer to page 29 for details.)
2. **MY CUSTOM STITCH™ (CREATE YOUR OWN STITCH DESIGNS)** key
   You can use the "MY CUSTOM STITCH™" (function for making own stitch) to sew patterns that you have drawn yourself. (Refer to page 77.)
3. **EMBROIDERY** key
   When the embroidery unit is installed, press this key to display a screen that allows you to select letters and other decorative designs for embroidering. (Refer to page 95 for details.)
4. **MEMORY** key
   When the embroidery unit is installed, press this key to display a screen that allows you to store or retrieve embroidery pattern combinations. (Refer to pages 110 and 111 for details.)
5. **OPERATION GUIDE** key
   When the embroidery unit is not installed, press this key to see information on how to use machine functions such as upper threading, bobbin winding and bobbin thread setting. (Refer to page 35 for details.)
6. **STITCH ADJUST** (stitch adjustment) key
   When the embroidery unit is not installed, press this key to display a screen that allows you to change the stitch width and length, and

Operation buttons



1. Thread cutter button
   Press this button to cut both the upper and the bobbin threads automatically.
2. Needle position button
   Press this button to raise or lower the needle.
3. Reverse/reinforcement stitch button
   Press this button to secure the end of the stitching by sewing either reverse stitches or reinforcement stitches. Reverse stitches (straight stitches only) are sewn by stitching in the reverse direction. Reinforcement stitches (most other stitches) are made by sewing three stitches on top of each other.
4. Start/stop button
   Press this button to start or stop sewing. The needle drops to its lowest position when the machine is stopped. To sew at a low speed, keep this button pressed.
   This button lights up in green when the machine is ready to start sewing and while it is sewing or embroidering. If the machine is not ready to start sewing, the button lights up in red. The button lights up in orange when the bobbin winder shaft is moved to the right in order to wind the bobbin thread onto the bobbin.

LCD screen



Press a key on the screen with your finger to select the pattern displayed inside the key or to start the indicated function or operation.

Note

When the machine is turned on, the straight stitch (left needle position) is automatically selected.

CAUTION

Be sure to press the key only with your finger. Never press a key with a hard, pointed instrument, such as a pencil or a screwdriver. Furthermore, do not press down too hard on the screen, otherwise it may be damaged.

1. Attach the presser foot indicated by the code that is displayed.
2. Press this key before sewing with the optional side cutter installed.
3. Press this key before sewing to automatically sew reverse or reinforcement stitches at the beginning and end of stitching. (Refer to page 36 for more details.)
4. Press this key before sewing to automatically cut the threads after sewing. (Refer to page 37 for more details.)
5. Press this key to display the stitch guide, which will help you select the best stitch for your specific need.
6. Press this key to display the previous page.
7. Press this key to display the next page.

Other basic LCD keys

END key

Press this key to stop using the current function.

CHECK key

If an error message appears, press this key to return to the previous screen.

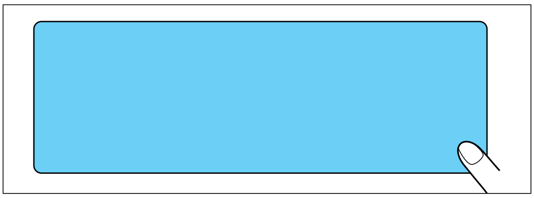
LCD DENSITY

At times, changes in the ambient temperature may make all or part of the screen light or darker; this is not the sign of a malfunction. If the screen becomes difficult to read, adjust its density.

Note

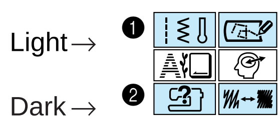
The screen may become dark immediately after the power is turned on. This is a feature of the light that illuminates the screen, and is not the sign of a malfunction. The screen will return to its normal level of brightness after approximately 10 minutes.

Adjusting the density with the main power switch



1. While pressing anywhere in the LCD, turn the sewing machine off, then back on again.

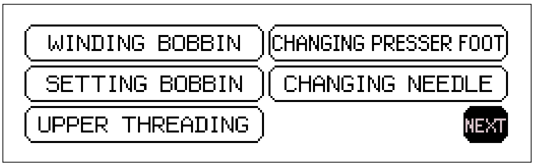
Adjust the screen density.
After making the adjustment, turn the power off, then on again.



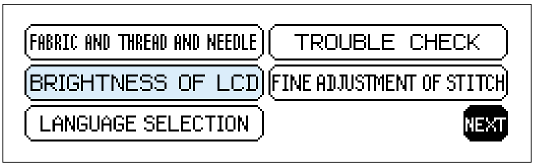
2. Adjust the density of the LCD.
   To make the LCD lighter, press either the **SEWING** key or the **MY CUSTOM STITCH**TM key.
   To make the LCD darker, press either the **OPERATION GUIDE** or the **STITCH ADJUST** key.
   The density of the LCD changes each time one of these keys is pressed.
   ❶ Press this key to make the density lighter.
   ❷ Press one of these keys to make the density darker.

3. After making the adjustment, turn the machine off, then back on again.

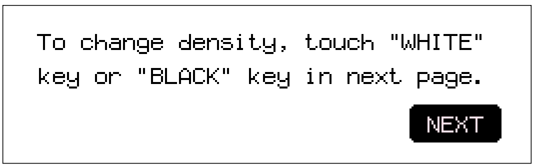
Adjusting the density with the Operation Guide



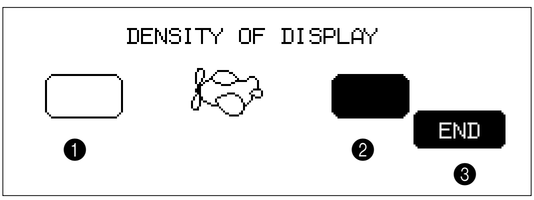
1. Press the **OPERATION GUIDE** key.
2. Press the **NEXT** key.



3. Press the **BRIGHTNESS OF LCD** key.



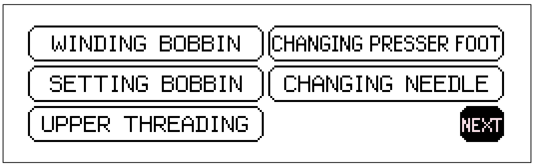
4. Press the **NEXT** key.



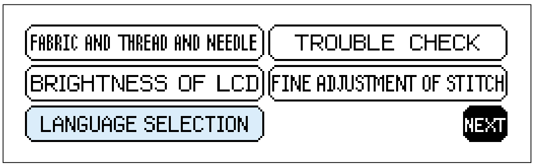
5. Adjust the density of the LCD.
   To make the LCD lighter, press the white key.
   To make the LCD darker, press the black key.
   The density of the LCD changes each time one of these keys is pressed.
   ❶ Press this key to make the density lighter.
   ❷ Press one of these keys to make the density darker.
   ❸ Press this key to finish adjusting the density.
6. After making the adjustment, press the **END** key.

DISPLAY LANGUAGE

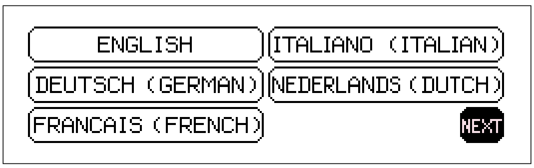
You can easily change the language of all the keys and messages displayed on the LCD.



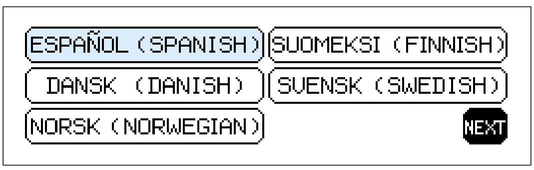
1. Press the **OPERATION GUIDE** key.
2. Press the **NEXT** key.



3. Press the **LANGUAGE SELECTION** key.



4. Press the **NEXT** key until the desired language is displayed.



5. Press the key of the desired language. The language of all keys and messages displayed in the LCD are changed.

Note

– When the display language is changed, error messages will also be displayed in the selected language.
– The display language can be set to one of 11 languages (English, German, French, Italian, Dutch, Spanish, Danish, Norwegian, Finnish, Swedish and Portuguese).

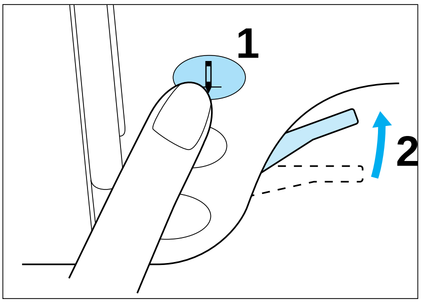
CAUTION

– **This function should not be used as a translation function.**
– **Even when the sewing machine is turned off, the current language setting will be retained.**

PRESSER FEET / FEED DOGS

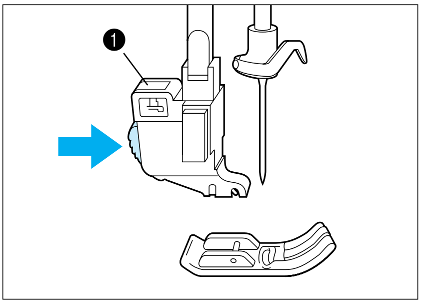
Changing the presser foot

It may be necessary to change the presser foot depending on the stitch that is selected.

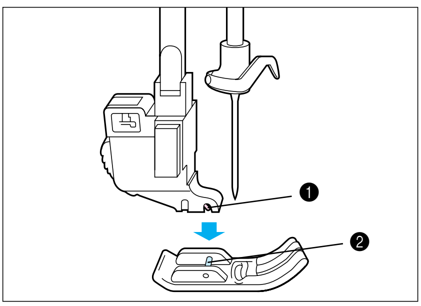


1. Press the needle position button to raise the needle, and then turn off the sewing machine.

2. Raise the presser foot lever.



3. Press the black button located at the back of the presser foot holder to release the foot.
   ❶ Presser foot holder

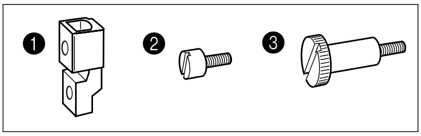


4. Place the other presser foot below the holder so that the presser foot pin is aligned with the slit in the holder.

5. Lower the presser foot lever so that the presser foot pin snaps into the notch in the presser foot holder.
   ❶ Notch in presser foot holder
   ❷ Presser foot pin

Installing the presser foot adapter & the walking foot

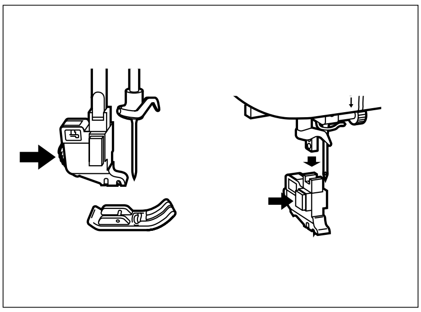
The presser foot adapter is used for attaching screw-on presser feet to this machine.



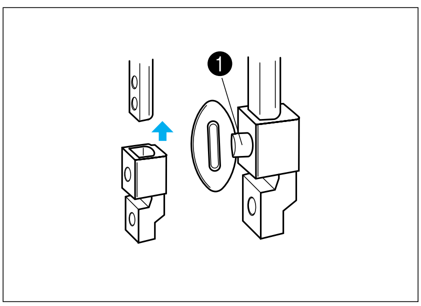
❶ Adapter
❷ Screw (for securing adapter)
❸ Screw (for securing presser foot)

The walking foot is useful for sewing materials that are hard to feed, such as vinyl cloth, synthetic leather, thin leather, etc. This foot prevents such materials from crumpling, slipping or sticking by evenly feeding both pieces of fabric.

The walking foot can only be used to sew the straight stitches (and) and the zigzag stitch ( ).

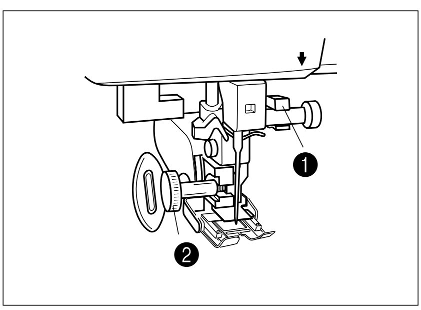


1. Remove the installed presser foot and the presser foot holder.



2. Slide the presser foot adapter as high as possible up the presser foot bar, and then fasten it by firmly tightening the screw (for securing adapter) with the enclosed screwdriver or disc-shaped screwdriver.
   ❶ Screw (for securing adapter)

Note
If the screw is not completely tightened, injuries may occur.

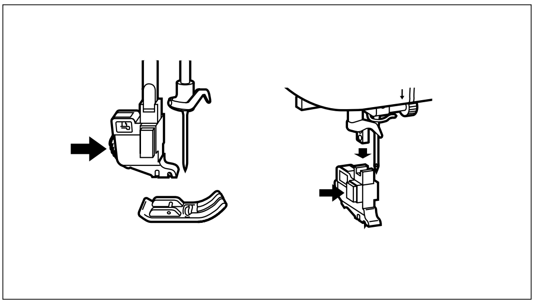


3. Hook the connecting fork of the walking foot onto the needle clamp screw, lower the presser foot lever, and then fasten the walking foot by firmly tightening the screw (for securing presser foot) with the enclosed screwdriver or disc-shaped screwdriver.
   ❶ Connecting fork
   ❷ Screw (for securing presser foot)

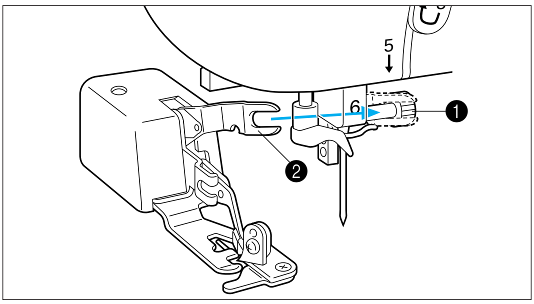
Note
– Before sewing, be sure to turn the balance wheel slowly toward you to check that the needle does not touch the presser foot, otherwise injuries may occur.
– Sew at a slow to medium speed.

Installing the optional side cutter

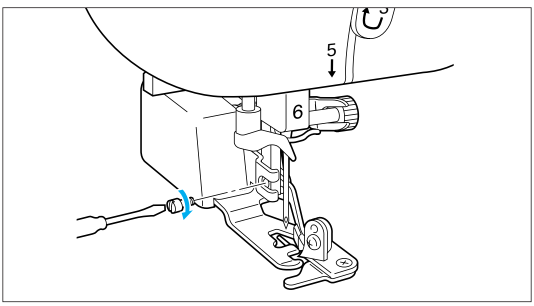
By installing the side cutter, you can cut the fabric while sewing, for example when sewing an overcasting stitch. To use the side cutter, select a pattern that displays on the LCD, and then press so that it appears as .



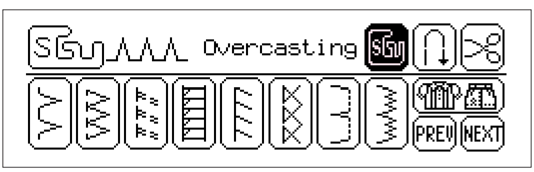
1. Press the needle position button to raise the needle, and then turn off the sewing machine.
2. Raise the presser foot lever.
3. Remove the installed presser foot and the presser foot holder.



4. Securely hook the connecting fork of the side cutter onto the needle clamp screw.
   ❶ Needle clamp screw
   ❷ Connecting fork



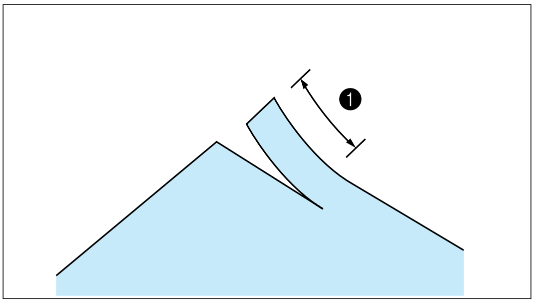
5. While lifting the presser foot up, insert the screw (for securing presser foot) through the notch in the side cutter's bracket and into the hole in the presser foot bar, and then lightly tighten the screw. Lower the presser foot lever, and then firmly tighten the screw with the enclosed screwdriver or disc-shaped screwdriver.



6. Select a pattern, and then press so that it appears as . Other necessary adjustments for using the side cutter will be carried out automatically.

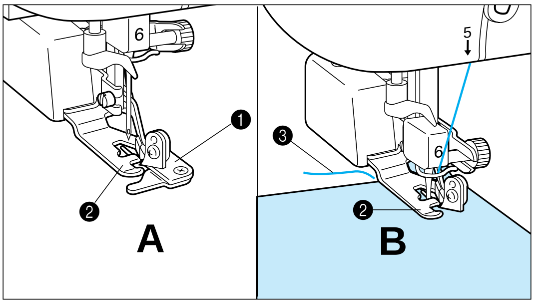
Note

Pressing so that it changes back to turns off the side cutter operation.



7. Make a cut of about 25/32" (2.0 cm) long in the fabric.
   ❶ 25/32" (2.0 cm)

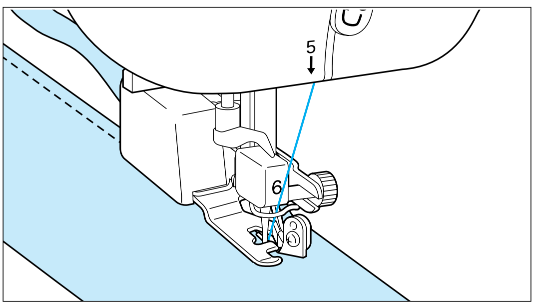
8. Raise the presser foot lever, and then thread the bobbin thread and the upper thread.



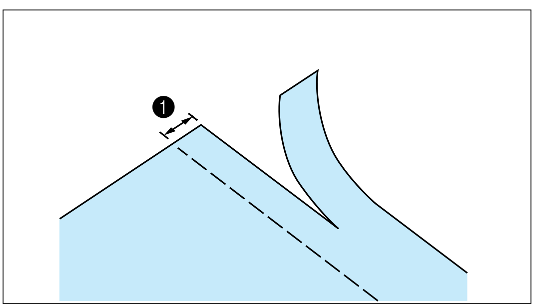
9. Position the fabric so that the right side of the cut goes over the guide plate and the left side of the cut is under the presser foot.
   ❶ Guide plate (lower knife)
   ❷ Presser foot

10. Thread the needle, pull out a long section of the upper thread, pass it under the presser foot, and then pull it out toward the rear of the sewing machine. (See figure B.)
    ❷ Presser foot
    ❸ Upper thread

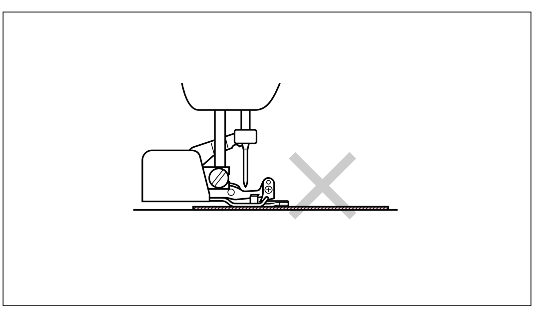
11. Lower the presser foot lever.



CAUTION
After the stitch width is adjusted, turn the balance wheel toward you by hand and check that the needle does not touch the side cutter. If the needle hits the side cutter and breaks, injuries may occur.

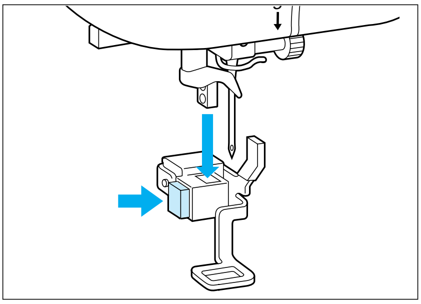


When sewing straight stitches, the seam margin will be about 13/64" (5.0 mm).
❶ Seam margin

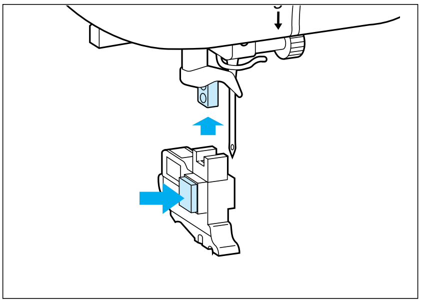


Note
– The side cutter will not cut the fabric if the fabric is simply spread out under the presser foot and the guide plate. Be sure to position the fabric as explained in step 9 before sewing.
– Always raise the needle before raising the presser foot lever.
– The side cutter can cut one layer of 13-oz denim.
– Clean the side cutter after using it, otherwise dust and scraps of thread will build up in it.
– Add a small amount of oil as required to the cutting edge of the cutter.

Installing the presser foot holder



1. Press the needle position button to raise the needle, and then turn off the sewing machine.
2. Raise the presser foot lever.
3. Remove the currently installed presser foot.

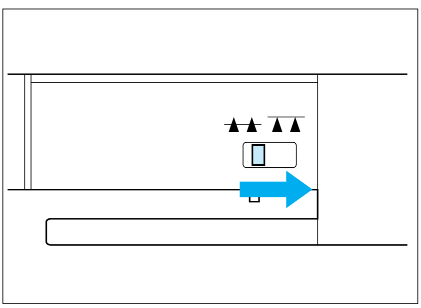


4. While pressing the black button on the left side of the presser foot holder, slide the holder as high as possible up the presser foot bar, and then release the button.
   ❶ Presser foot holder

CAUTION
Be careful not to touch the tip of the needle, otherwise injuries may occur.

Note
If the presser foot holder is not installed correctly, the thread tension may not be tight enough due to an improper presser foot height.

Raising/lowering the feed dogs



With the accessory compartment removed, the feed dog position switch can be seen at the base of the machine. To lower the feed dogs, for example when sewing buttons, slide the lever to the right. To continue sewing while the feed dogs feed the fabric, slide the lever to the left.

Note
When the embroidery unit is attached to the sewing machine, the feed dogs are automatically lowered.

FABRIC/THREAD/NEEDLE COMBINATIONS

Select the appropriate thread and needle for the fabric that you are using.

Application		Thread		Size of needle
		Type	Size	
Medium weight fabric	Broad cloth	Cotton	60-80	11-14
	Taffeta	Synthetic mercerized	60-80	
	Flannel, Gabardine	Silk	50-80	
Thin fabric	Lawn	Cotton	60-80	9-11
	Georgette	Synthetic mercerized	60-80	
	Challis, Satin	Silk	50-80	
Thick fabric	Denim	Cotton	30-50	14-16
	Corduroy	Synthetic mercerized	50	
	Tweed	Silk	50	
Stretch fabric	Jersey	Thread for knits		Golden needle 11-14
	Tricot			
For top stitching		Synthetic mercerized	30	14-16
		Silk	30	

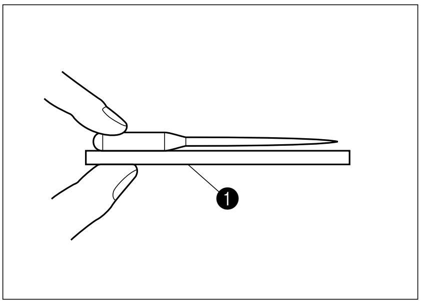
Note

– For sewing on the popular variety of stretch fabrics, for embroidering and for decorative stitch sewing, the golden needle should be used.

– There are many different types of needles to suit a variety of sewing needs. Therefore, be sure to select the correct needle for your specific sewing application, for example when sewing denim or when sewing with metallic thread.

NEEDLE

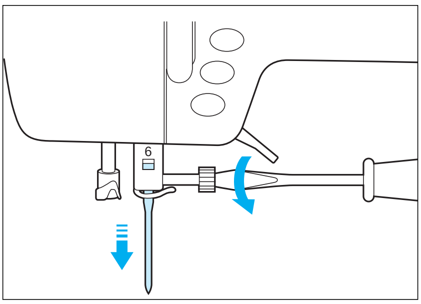
Checking the needle

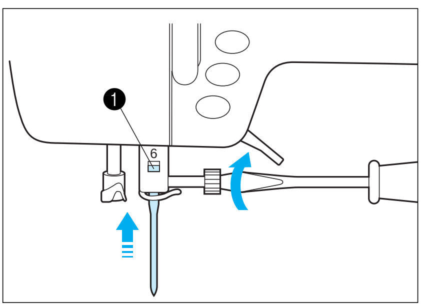


Place the flat side of the needle on a flat surface and check that the needle is not bent up, down, or to either side. If the needle is bent, it should be thrown away to prevent damage to your project or to the machine.

❶ Flat surface (needle plate, glass, ruler, etc.)

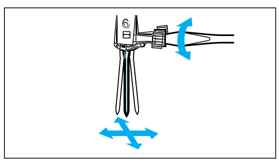
Changing the needle





A 75/11 needle is installed in the machine when you purchase it.

1. Press the needle position button to raise the needle.
2. Turn off the sewing machine and lower the presser foot lever.
3. Loosen the needle clamp screw with a screwdriver.
4. Pull out the needle.

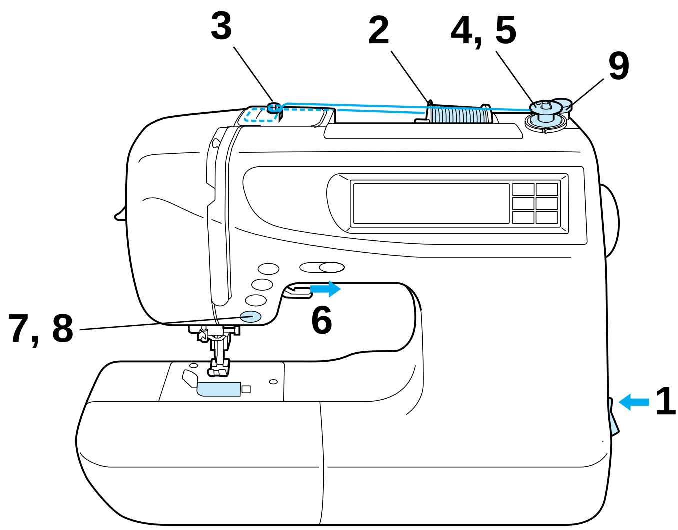


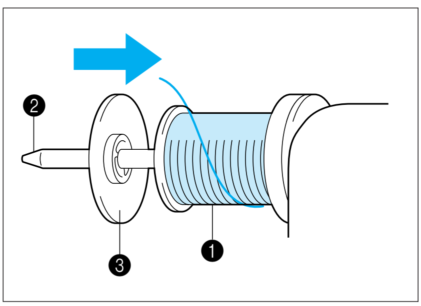
CAUTION
Do not apply a strong force when loosening or tightening the needle clamp screw, otherwise certain parts of the machine may be damaged.

5. With the flat side of the needle facing toward the back, insert the needle as far up as possible so that it touches the needle stopper. Fasten the screw securely with a screwdriver.
   ❶ Needle stopper
6. Turn the sewing machine on.

BOBBIN WINDING / LOWER THREADING

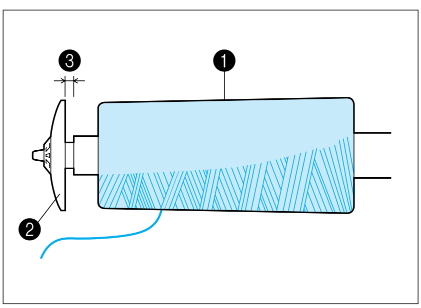
Winding the bobbin



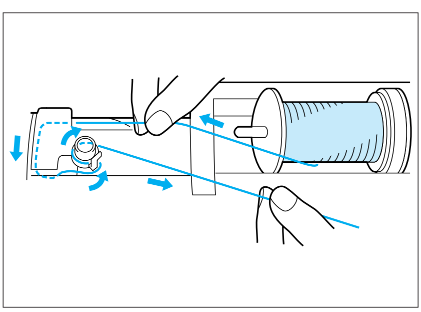


1. Plug the machine into the power supply and turn on the main power switch.

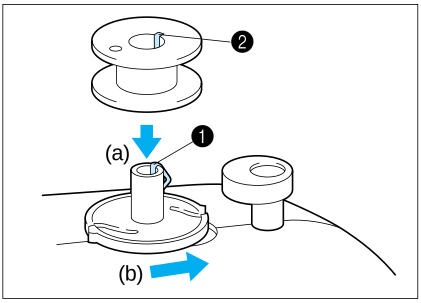
2. Place the spool on the spool pin so that the thread unrolls from the bottom front of the spool. Then, secure the spool on the spool pin using a spool cap with the size closest to the spool size.
   1 Spool
   2 Spool pin
   3 Spool cap



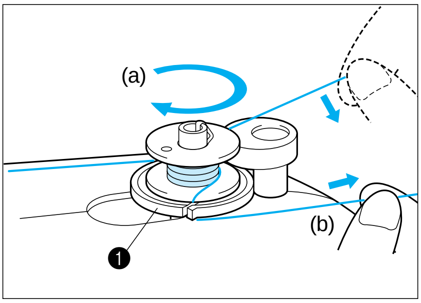
Note
If using fine thread such as cross-wound thread, leave some space between the spool cap (small) and the spool of thread.
   1 Cross-wound thread
   2 Spool cap (small)
   3 Gap



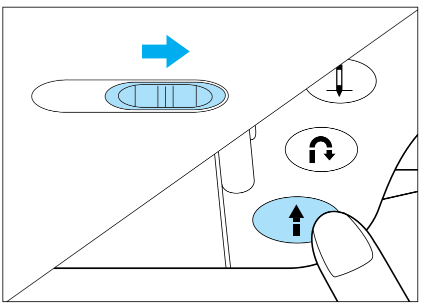
3. While holding the spool thread with your right hand, use your left hand to pass the thread through the guides as shown.



4. Place the bobbin on the bobbin winder shaft so that the spring on the shaft fits into the groove in the top of the bobbin (a). Then, slide the bobbin winder shaft to the right (b).
   ❶ Spring on the shaft
   ❷ Groove in the bobbin

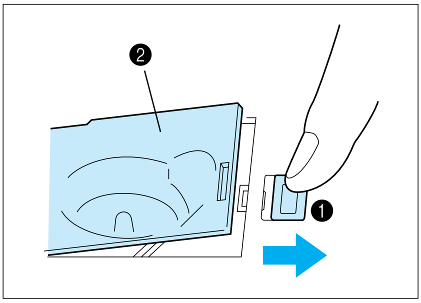


5. Wind the thread clockwise around the bobbin four or five times (a), pass the thread through the slit in the bobbin winder seat, and then pull it as shown to cut it (b).
   ❶ Bobbin winder seat

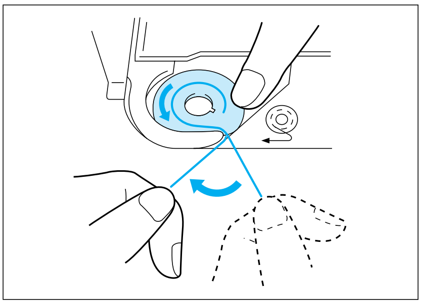


6. Slide the sewing speed controller to its maximum (as far as possible to the right).
7. Press the start/stop button. The bobbin stops spinning automatically when it is full.
8. After the bobbin has stopped spinning, press the start/stop button to stop the machine.
9. Cut the thread, slide the bobbin winder shaft to the left and then remove the bobbin.

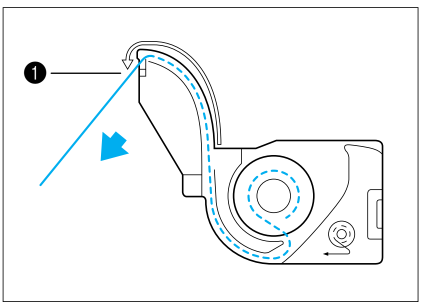
Installing the bobbin



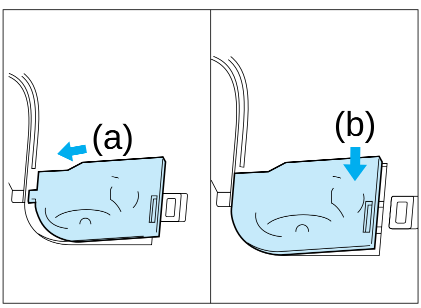
1. Slide the bobbin cover latch to the right, and then remove the bobbin cover.
   ❶ Bobbin cover latch
   ❷ Bobbin cover



2. Insert the bobbin into the shuttle so that the thread unrolls as shown in the illustration.



3. Guide the thread through the groove, then pull the thread toward you to cut off any excess.
   ❶ Built-in thread cutter



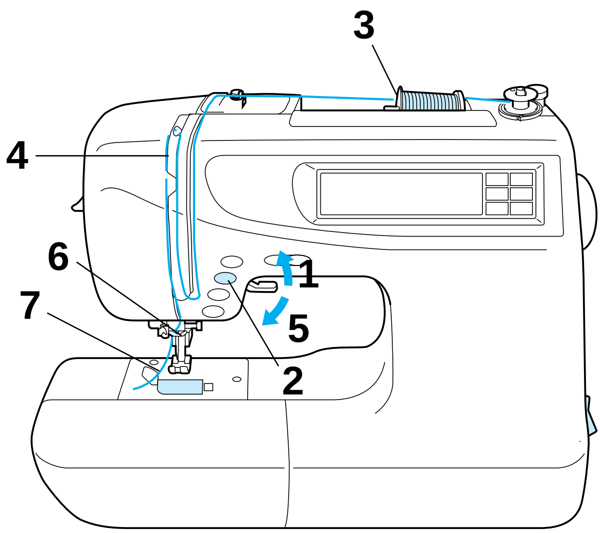
4. Reattach the bobbin cover by inserting the left end (a) and pressing down lightly on the right end so that it snaps into place (b).

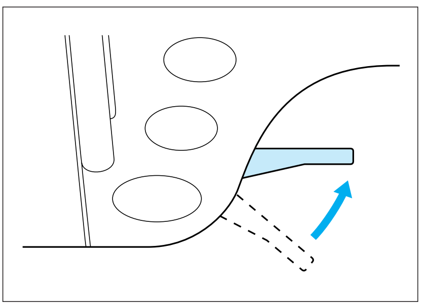
Note

You can begin sewing without pulling up the bobbin thread.

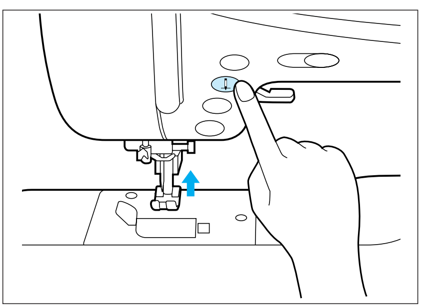
UPPER THREADING

Threading the upper thread

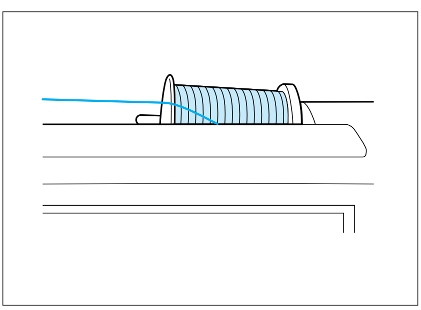




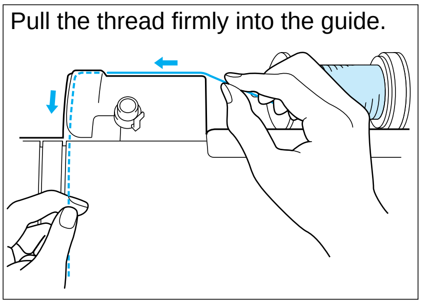
1. Raise the presser foot lever. (If the presser foot is not raised, the sewing machine cannot be threaded correctly.)



2. Press the needle position button to raise the needle.

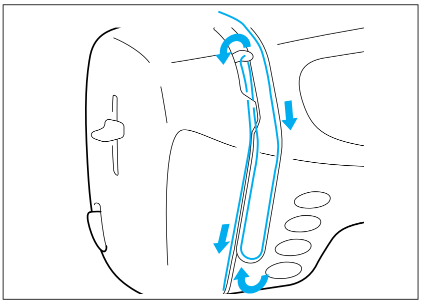


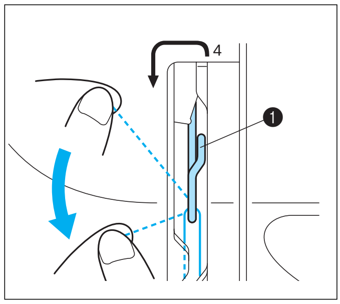
3. Place the spool on the spool pin so that the thread unrolls from the bottom front of the spool. Then, secure the spool on the spool pin using a spool cap with the size closest to the spool size.



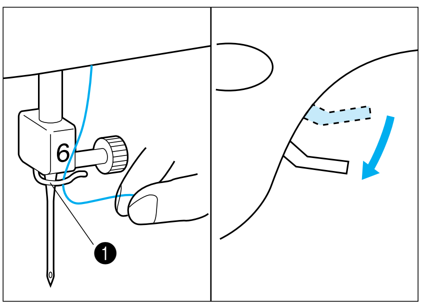
4. While holding the spool thread with your right hand, use your left hand to keep the thread taut while passing it through the guides as shown.

Note
Incorrect threading may cause damage.





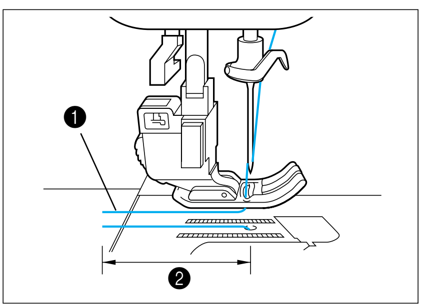
❶ Thread take-up lever



5. Pass the thread through the wire loop, and then lower the presser foot lever.
   ❶ Wire loop

Note
Lowering the presser foot lever engages the auto thread tension unit, allowing you to pull the thread taut as you continue. Be sure to raise the presser foot lever before removing the upper thread, otherwise the auto thread tension unit may be damaged.

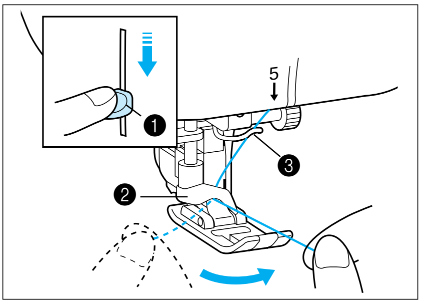
6. Thread the needle manually or using the needle threader. (Refer to page 26 for more details on using the needle threader.)



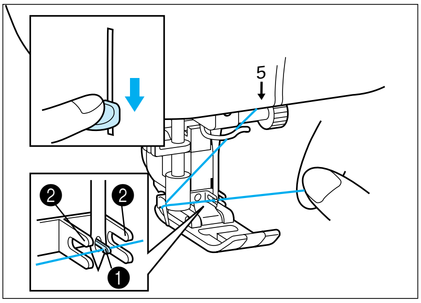
7. Pass the thread underneath the presser foot, and then pull about 2" (5.0 cm) of the upper thread out toward the rear of the machine.
   ❶ Upper thread
   ❷ 2" (5.0 cm)

Note
You can begin sewing without pulling up the bobbin thread.

Needle threader

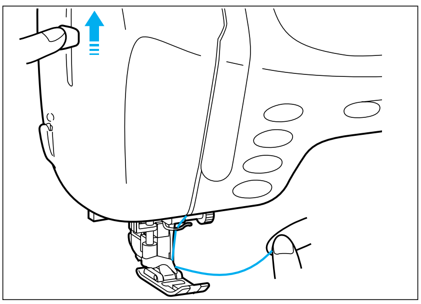


1. Use your left index finger to lower the needle threader lever while gently pulling the thread to the left so that it catches on the large hook.
   ❶ Needle threader lever
   ❷ Large hook

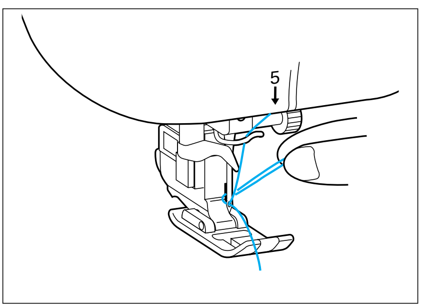


2. Lower the needle threader lever to its lowest position and check that the thread is held by the large hook and that the small hook has passed through the eye of the needle.
   ❶ Small hook

3. Pull the thread through the guides on each side of the needle so that the thread catches on the hook that passes through the eye of the needle.
   ❷ Guides



4. While gently holding the thread, raise the needle threader lever.



5. Pull the thread through the eye of the needle out towards the rear of the machine.

6. Pass the thread underneath the presser foot, and then pull about 2" (5.0 cm) of the upper thread out toward the rear of the machine.

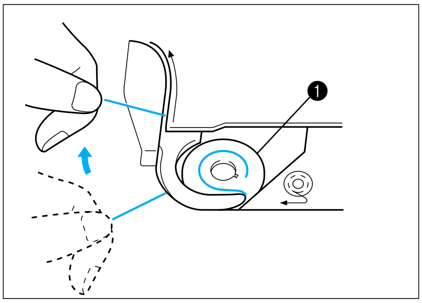
Note
You can begin sewing without pulling up the bobbin thread.

Needle	Thread (cotton)
65/9	#30, 50, 60
75/11	#30
90/14	#30
100/16	#20

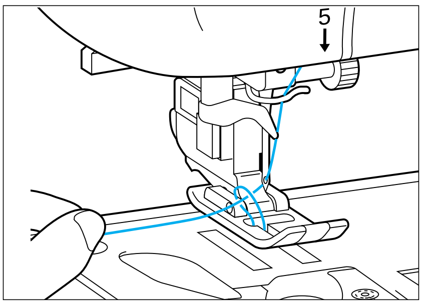
Note
– The needle threader cannot be used with the needle and thread combinations shown at the left.
– The needle threader can be used with transparent nylon thread and any size needle between 90/14 and 100/16.

Pulling up the bobbin thread

At some times, for example when making gathers, you may want to pull up the bobbin thread.



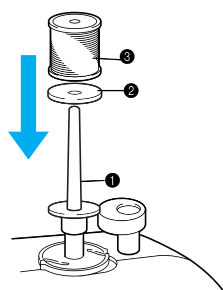
1. Raise the presser foot lever.
2. Remove the bobbin cover, and insert the bobbin into the shuttle so that the thread unrolls as shown in the illustration.
3. Guide the thread through the groove, and then leave it there without cutting it.
   ❶ Bobbin



4. With the bobbin cover still removed, hold the upper thread, press the needle position button twice, and then pull up the bobbin thread.
5. Pull about 2" (5.0 cm) of the bobbin thread out toward the rear of the machine and reattach the bobbin cover.

Extra spool pin

When embroidering with metallic thread, use the extra spool pin in order to prevent the thread from twisting as it unrolls from the spool.

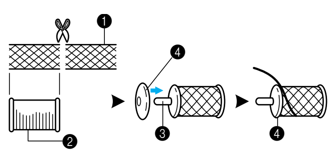


Note
When using metallic thread, we recommend using a 90/14 home sewing machine needle.

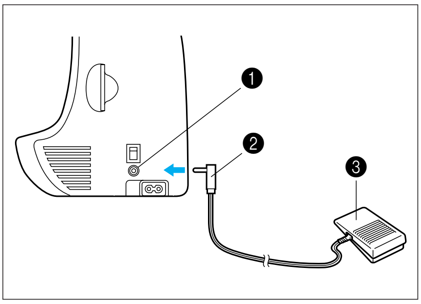
1. Insert the extra spool pin onto the end of the bobbin winder shaft.
2. Place the spool felt on the spool pin.
3. Place the spool of thread on the spool pin so that the thread unrolls from the front of the spool.
4. Thread the upper thread.
   ❶ Insert the extra spool pin onto the end of the bobbin winder shaft.
   ❷ Spool felt
   ❸ Spool of thread

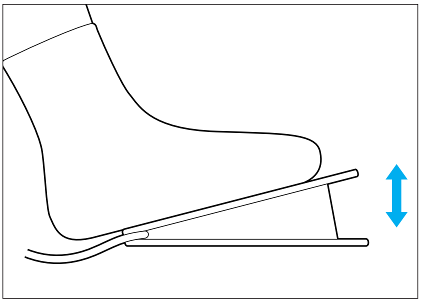
Net

When using special threads that quickly wind off the spool, place a net over the spool before sewing. Be sure to cut the net to match the size of the spool.
❶ Net
❷ Spool
❸ Spool pin
❹ Spool cap



FOOT CONTROLLER





This foot controller (model N5V) is designed for use with this sewing machine (model PC-6500).

Note

- When the foot controller is plugged in, the start/stop button cannot be used to start or stop sewing.
- The foot controller's maximum sewing speed is set with the sewing speed controller.

1. With the sewing machine turned off, insert the foot controller plug into its jack on the machine.
   ❶ Foot controller jack
   ❷ Foot controller plug
   ❸ Foot controller

2. Turn on the sewing machine, and then slowly depress the foot controller to start sewing.

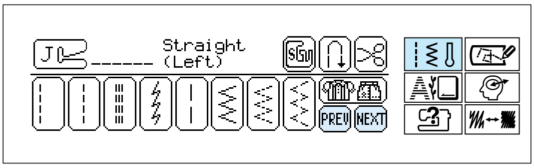
3. Release the foot controller to stop sewing.

CAUTION
Do not allow fabric pieces or dust to collect in the foot controller, otherwise a fire or an electric shock may occur.

STITCH SELECTION

Selecting a utility stitch

This sewing machine is equipped with 78 built-in utility stitches.



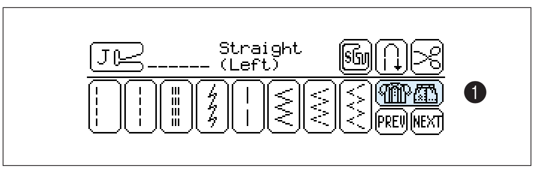
1. Press the **SEWING** key.
2. Press the **PREV** or **NEXT** key until the desired stitch is displayed.
3. Press the key for the stitch that you wish to use.

For details on sewing using the selected utility stitch, refer to page 43.

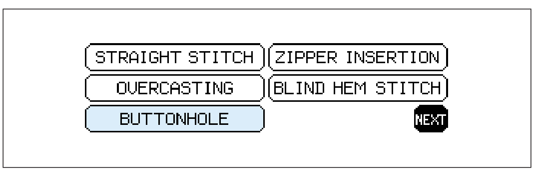
Selecting a stitch with the stitch guide ( )

The stitch guide can provide beginning sewers with help in selecting the appropriate stitch for the desired sewing application. An example of how the stitch guide can be used is shown below.

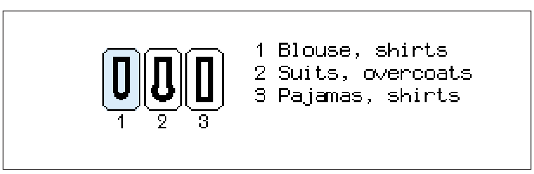
Example: To select a stitch for sewing a buttonhole on a shirt



1. If the utility stitch screen is not already displayed, press the **SEWING** key.
2. Press .
   ❶ Press this key to display more sewing applications.



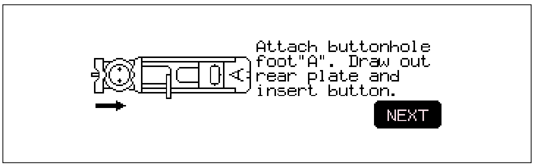
3. Press the **BUTTONHOLE** key.



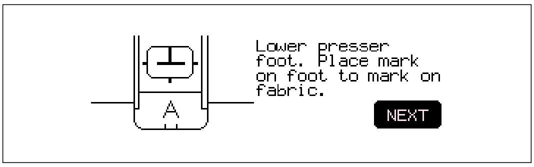
4. Press to select the buttonhole stitch for a shirt.



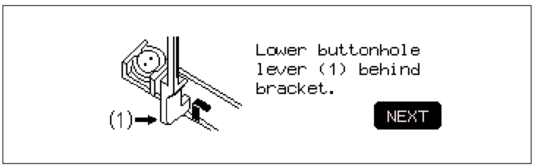
5. Follow the instructions, and then press the **NEXT** key.



6. Follow the instructions, and then press the **NEXT** key.



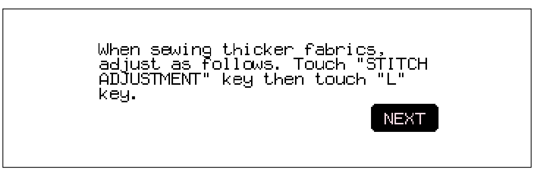
7. Follow the instructions, and then press the **NEXT** key.



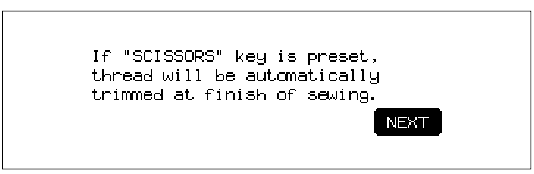
8. Follow the instructions, and then press the **NEXT** key.



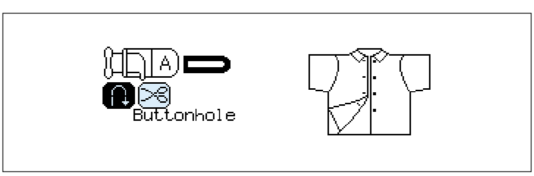
9. Follow the instructions, and then press the **NEXT** key.



10. Follow the instructions, and then press the **NEXT** key.



11. Follow the instructions, and then press the **NEXT** key.



12. To turn on automatic reverse/reinforcement stitching, press [icon] so that it appears as [icon]. To turn on automatic thread cutting, press [icon] so that it appears as [icon].

Stitch width and length reference chart

STITCH	Stitch width [mm (inch)] Auto	Stitch width [mm (inch)] Manual	Stitch length [mm (inch)] Auto	Stitch length [mm (inch)] Manual
Straight (Left needle position)	[0.0 (0)]	0.0–7.0 (0–9/32)	2.5 (3/32)	0.2–5.0 (1/128–13/64)
Straight (Middle needle position)	–	–	2.5 (3/32)	0.2–5.0 (1/128–13/64)
Triple stretch stitch	[0.0 (0)]	0.0–7.0 (0–9/32)	2.5 (3/32)	1.5–3.5 (15/256–3/32)
Stretch stitch	1.0 (3/64)	1.0–3.0 (5/128–1/8)	2.5 (3/32)	1.0–4.0 (5/128–5/32)
Basting stitch	0.0 (0)	0.0–7.0 (0–9/32)	20 (25/32)	5–30 (13/64–1-3/16)
Zigzag stitch	3.5 (9/64)	0.0–7.0 (0–9/32)	1.4 (14/256)	0.0–4.0 (0–5/32)
Elastic Zigzag	5.0 (13/64)	1.5–7.0 (15/256–9/32)	1.0 (5/128)	0.2–4.0 (1/128–5/32)
	5.0 (13/64)	1.5–7.0 (15/256–9/32)	1.0 (5/128)	0.2–4.0 (1/128–5/32)
Overcasting	3.5 (9/64)	2.5–5.0 (3/32–13/64)	2.0 (1/16)	1.0–4.0 (5/128–5/32)
	5.0 (13/64)	2.5–5.0 (3/32–13/64)	2.5 (3/32)	1.0–4.0 (5/128–5/32)
	5.0 (13/64)	0.0–7.0 (0–9/32)	2.5 (3/32)	0.5–4.0 (5/256–5/32)
	5.0 (13/64)	3.5–5.0 (9/64–13/64)	2.5 (3/32)	1.0–4.0 (5/128–5/32)
	5.0 (13/64)	0.0–7.0 (0–9/32)	2.5 (3/32)	0.5–4.0 (5/256–5/32)
	4.0 (5/32)	0.0–7.0 (0–9/32)	4.0 (5/32)	1.0–4.0 (5/128–5/32)
Blind hem stitch	0.0 (0)	+3 – –3	2.0 (5/64)	1.0–3.5 (5/128–9/64)
Buttonhole	5.0 (13/64)	3.0–5.0 (1/8–13/64)	0.4 (1/64)	0.2–1.0 (1/128–5/128)
	5.0 (13/64)	3.0–5.0 (1/8–13/64)	0.4 (1/64)	0.2–1.0 (1/128–5/128)
	5.0 (13/64)	3.0–5.0 (1/8–313/64)	0.4 (1/64)	0.2–1.0 (1/128–5/128)
	5.0 (13/64)	3.0–5.0 (1/8–13/64)	0.4 (1/64)	0.2–1.0 (1/128–5/128)
	6.0 (15/64)	3.0–6.0 (1/8–15/64)	1.0 (5/128)	0.5–2.0 (5/256–5/64)
	6.0 (15/64)	3.0–6.0 (1/8–15/64)	1.5 (15/256)	1.0–3.0 (5/128–1/8)
	5.0 (13/64)	0.0–6.0 (0–15/64)	2.0 (5/64)	0.2–5.0 (1/128–13/64)
	7.0 (9/32)	3.0–7.0 (1/8–9/32)	0.5 (5/256)	0.3–1.0 (3/256–5/128)
Bar tack	2.0 (5/64)	1.0–3.0 (5/128–1/8)	0.4 (1/64)	0.3–1.0 (3/256–5/128)
Darning	7.0 (9/32)	2.5–7.0 (3/32–9/32)	2.0 (5/64)	0.4–2.5 (1/64–3/32)
Tape attaching	4.0 (5/32)	0.0–7.0 (0–9/32)	1.0 (5/128)	0.2–4.0 (1/128–5/32)
Eyelet	7.0 (9/32)	5.0 6.0 7.0 (13/64–9/32)	7.0 (9/32)	5.0 6.0 7.0 (13/64–9/32)
Button sewing	3.5 (9/64)	2.5–4.5 (3/32–11/64)	–	–
Appliqué	3.5 (9/64)	2.5–7.0 (3/32–9/32)	2.5 (3/32)	1.6–2.5 (1/16–3/32)
Scallop stitch	5.0 (13/64)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/256–5/128)
Smocking stitch	5.0 (13/64)	1.5–7.0 (15/256–9/32)	1.6 (1/16)	0.2–4.0 (1/128–5/32)
Patchwork stitch	5.0 (13/64)	2.5–7.0 (3/32–9/32)	2.5 (3/32)	1.0–3.5 (5/128–9/64)
	4.0 (5/32)	0.0–7.0 (0–9/32)	1.2 (3/64)	0.2–4.0 (1/128–5/32)
	5.0 (13/64)	0.0–7.0 (0–9/32)	1.2 (3/64)	0.2–4.0 (1/128–5/32)
Fagoting	5.0 (13/64)	0.0–7.0 (0–9/32)	2.5 (3/32)	2.5–4.0 (3/32–5/32)
	5.0 (13/64)	2.5–7.0 (3/32–9/32)	2.5 (3/32)	1.0–3.5 (5/128–9/64)
Applique	1.5 (15/256)	0.5–3.5 (5/256–9/64)	1.4 (14/256)	0.8–4.0 (1/32–5/32)

–: Non-adjustable

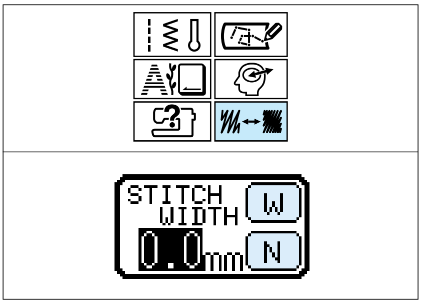
STITCH		Stitch width [mm (inch)]		Stitch length [mm (inch)]	
		Auto	Manual	Auto	Manual
Decorative		0.0 (0)	0.0–7.0 (0–9/32)	2.5 (3/32)	1.0–4.0 (5/128–5/32)
		5.0 (13/64)	1.5–7.0 (15/256–9/32)	1.0 (5/128)	0.2–4.0 (1/128–5/32)
		4.0 (5/32)	0.0–7.0 (0–9/32)	2.5 (3/32)	1.0–4.0 (5/128–5/32)
		4.0 (5/32)	0.0–7.0 (0–9/32)	3.0 (1/8)	2.0–4.0 (5/64–5/32)
		5.5 (7/32)	0.0–7.0 (0–9/32)	1.6 (1/16)	1.0–4.0 (5/128–5/32)
		3.5 (9/64)	0.0–7.0 (0–9/32)	1.6 (1/16)	0.2–4.0 (1/128–5/32)
Heirloom		6.0 (15/64)	1.5–7.0 (15/256–9/32)	2.5 (3/32)	1.5–4.0 (15/256–5/32)
		5.0 (13/64)	2.0–7.0 (5/64–9/32)	1.6 (1/16)	1.0–4.0 (5/128–5/32)
		5.0 (13/64)	1.5–7.0 (1/16–9/32)	4.0 (5/32)	1.5–4.0 (15/256–5/32)
		3.5 (9/64)	1.5–7.0 (15/256–9/32)	3.0 (1/8)	1.6–4.0 (1/16–5/32)
		5.0 (13/64)	3.0–7.0 (1/8–9/32)	3.5 (9/64)	2.0–4.0 (5/64–5/32)
Satin stitch		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)

STITCH		Stitch width [mm (inch)]		Stitch length [mm (inch)]	
		Auto	Manual	Auto	Manual
Satin stitch		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)
		7.0 (9/32)	2.5–7.0 (3/32–9/32)	0.4 (1/64)	0.1–1.0 (1/160–5/128)

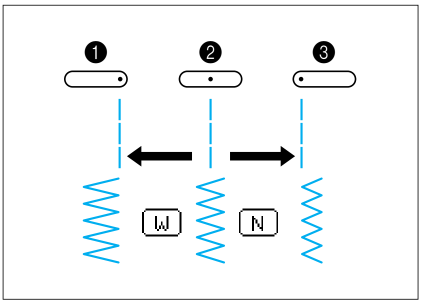
–: Non-adjustable

STITCH WIDTH & LENGTH

Adjusting the needle position (stitch width)



1. Select a stitch, and then press the **STITCH ADJUST** key.
2. Adjust the needle position (stitch width).
   To move the needle toward the right (increase the stitch width), press the **STITCH WIDTH** key [W] (wider).
   To move the needle toward the left (decrease the stitch width), press the **STITCH WIDTH** key [N] (narrower).
   The stitch length setting changes each time one of these keys is pressed.
3. After making the adjustment, press the **END** key.



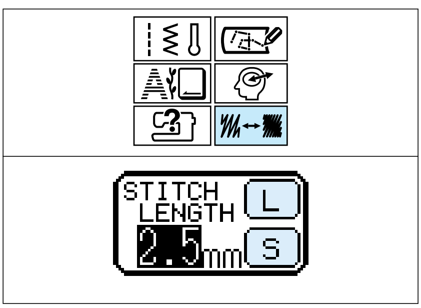
Note

– The needle position cannot be changed for the straight stitch (center needle position) ( ).

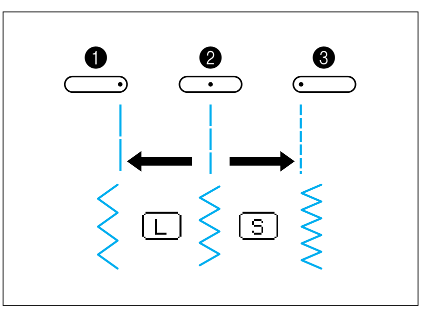
– The default stitch width setting for the selected stitch is highlighted in black.

❶ Needle moved toward the right (wider stitch)
❷ Needle positioned in the center (standard stitch width)
❸ Needle moved toward the left (narrower stitch)

Adjusting the stitch length



1. Select a stitch, and then press the **STITCH ADJUST** key.
2. Adjust the stitch length.
   To increase the stitch length, press the **STITCH LENGTH** key [L] (longer).
   To decrease the stitch length, press the **STITCH LENGTH** key [S] (shorter).
   The stitch length setting changes each time one of these keys is pressed.
3. After making the adjustment, press the **END** key.



Note

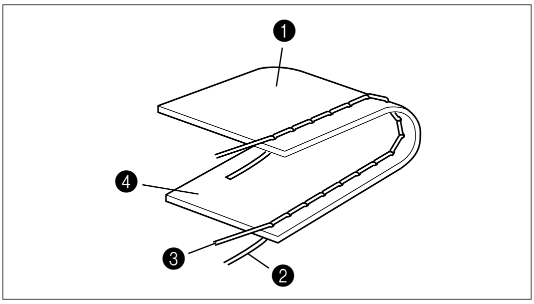
– When sewing straight stitches with 4.5 mm or 5.0 mm length setting on fabric less than 5/128˝ (1.0 mm) thick, the stitch length automatically adjusts to 5/32˝ (4.0 mm) at the start of sewing in order to prevent gathering.

– The default stitch length setting for the selected stitch is highlighted in black.

❶ Longer stitch
❷ Medium stitch length
❸ Shorter stitch

THREAD TENSION

Correct tension



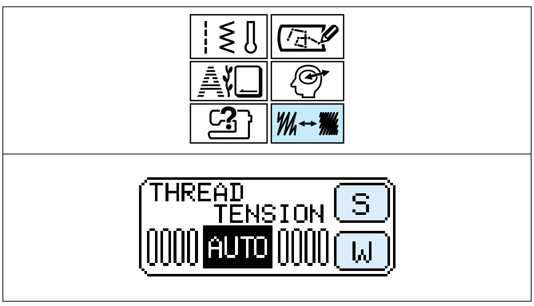
❶ Wrong side of fabric
❷ Bobbin thread
❸ Upper thread
❹ Right side of fabric

The upper thread and the bobbin thread should cross at about the center of the fabric. If the thread tension is incorrectly set, flat attractive stitches will not be sewn or the fabric will pucker.
The thread tension for each stitch is preset to the most appropriate setting. However, in the following cases, the thread tension may need adjustment:

* when using special thread or sewing on special fabric
* when sewing gathers
* when the preset settings do not give the desired result

Note
Correct tension is important since too much or too little tension weakens the seams or causes the fabric to pucker.

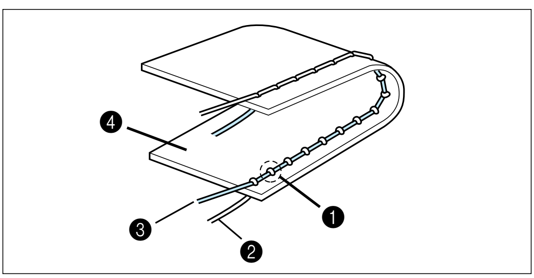
Adjusting the upper thread tension



1. Select a stitch, and then press the **STITCH ADJUST** key.
2. Adjust the thread tension.
   To increase the thread tension (tighten the upper thread), press the **THREAD TENSION** key [S] (stronger).
   To decrease the thread tension (loosen the upper thread), press the **THREAD TENSION** key [W] (weaker).
   The thread tension setting changes each time one of these keys is pressed.
3. After making the adjustment, press the **END** key.

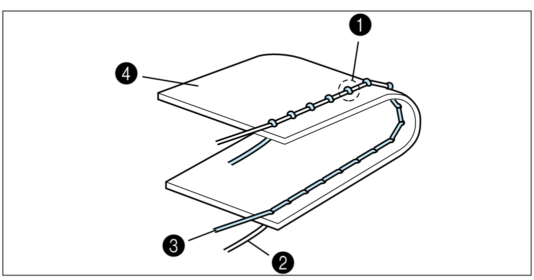
Note
The default thread tension setting (**AUTO**) is highlighted in black.

Upper thread is too tight:



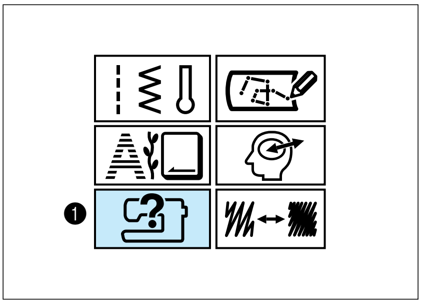
❶ If the upper thread is too tight, locks appear on the right side of the fabric.
❷ Bobbin thread
❸ Upper thread
❹ Right side of fabric

Upper thread is too loose:



❶ If the upper thread is too loose, locks appear on the wrong side of the fabric.
❷ Bobbin thread
❸ Upper thread
❹ Wrong side of fabric

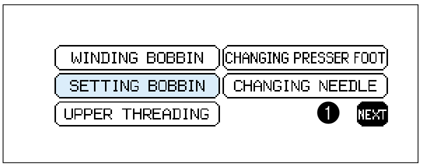
OPERATION GUIDE



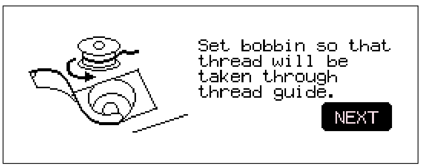
This sewing machine is equipped with a convenient guide that displays information and instructions on various operations, such as bobbin winding, upper threading, and LCD adjustment, making this machine easy to use.

Example: To display the instructions for installing the bobbin

1. Press the **OPERATION GUIDE** key.
   ❶ **OPERATION GUIDE** key



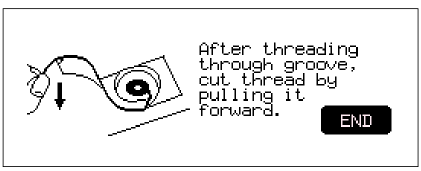
2. Press the **SETTING BOBBIN** key.
   ❶ Press the **NEXT** key to display more options.



3. Follow the instructions, and then press the **NEXT** key.



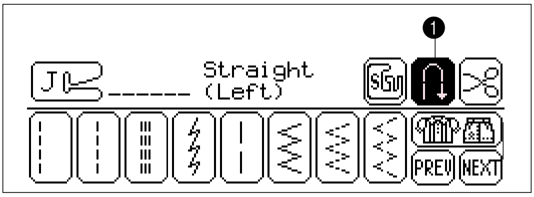
4. Follow the instructions, and then press the **NEXT** key.



5. Follow the instructions, and then press the **END** key.

AUTOMATIC REVERSE/REINFORCEMENT STITCHING

Before sewing, turn on automatic reverse/reinforcement stitching to sew reverse stitches (stitches sewn in the reverse direction when sewing straight stitches) or reinforcement stitches (three stitches sewn on top of each other when sewing stitches other than straight stitches) automatically at both the beginning and the end of the stitching to secure it.



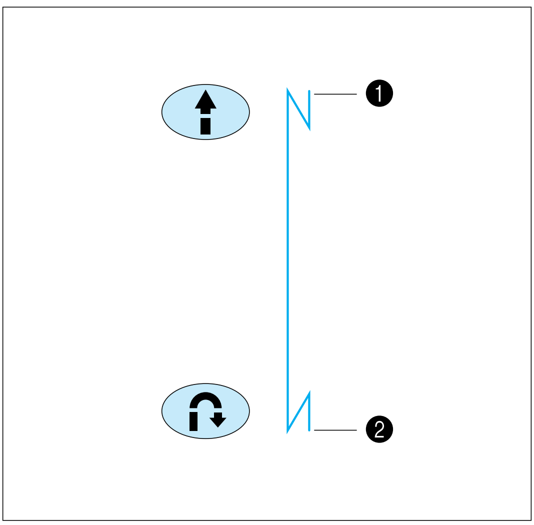
1. Select a stitch.

2. Turn on automatic reverse/reinforcement stitching by pressing so that it appears as .
   ❶ Automatic reverse/reinforcement stitching turned on

Note

– Be sure to place the edge of the fabric at least 3 to 4 stitch lengths behind the presser foot so that the reverse/reinforcement stitches can be sewn.

– Pressing so that it changes back to turns off automatic reverse/reinforcement stitching.



3. Press the start/stop button.
   ❶ Reverse/reinforcement stitches are sewn, and then sewing starts.

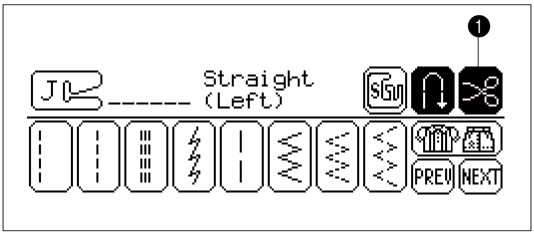
Note

If the start/stop button had been pressed to pause sewing, the beginning reverse/reinforcement stitches are not sewn.

4. When the end of the stitching is reached, press the reverse/reinforcement stitch button to sew reverse/reinforcement stitches and stop sewing.
   ❷ Reverse/reinforcement stitches are sewn, and then sewing stops automatically.

AUTOMATIC THREAD CUTTING

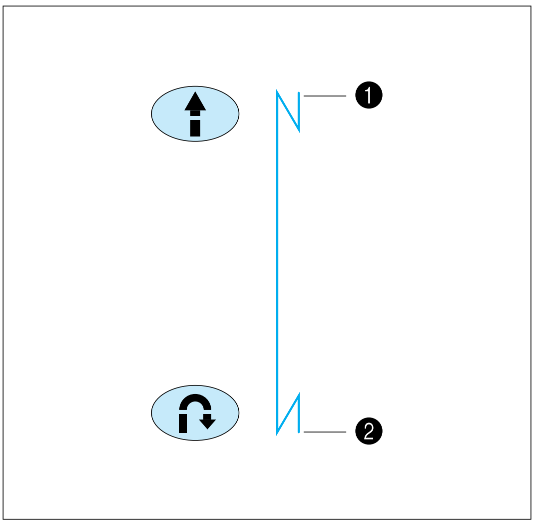
Before sewing, turn on automatic thread cutting to cut the threads automatically at the end of sewing. This function is convenient when sewing buttonholes and bar tacks.



1. Select a stitch.

2. Turn on automatic thread cutting by pressing so that it appears as .
   ❶ Automatic thread cutting turned on

Note
- Automatic reverse/reinforcement stitching must also be used when automatic thread cutting is turned on.
- Pressing so that it changes back to turns off automatic thread cutting.



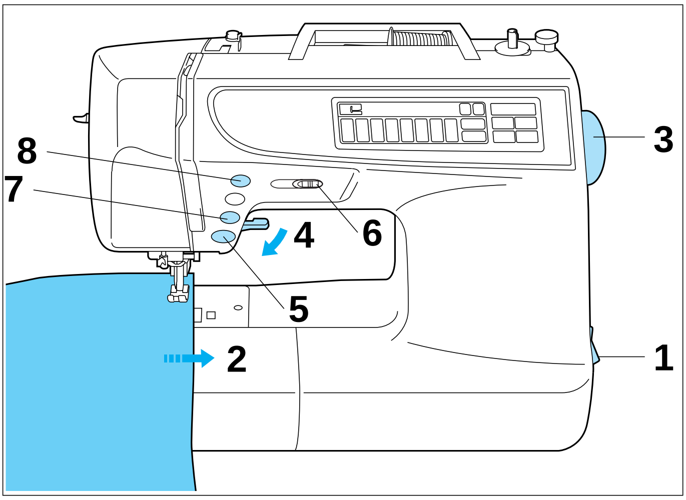
3. Press the start/stop button.
   ❶ Reverse/reinforcement stitches are sewn, and then sewing starts.

Note
If the start/stop button had been pressed to pause sewing, the beginning reverse/reinforcement stitches are not sewn.

4. When the end of the stitching is reached, press the reverse/reinforcement stitch button to sew reverse/reinforcement stitches, stop sewing, and cut the threads.
   ❷ Reverse/reinforcement stitches are sewn, sewing stops, and then the threads are cut automatically.

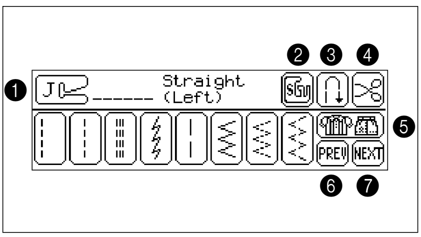
BASIC SEWING

Sewing using the straight stitch (left needle position)

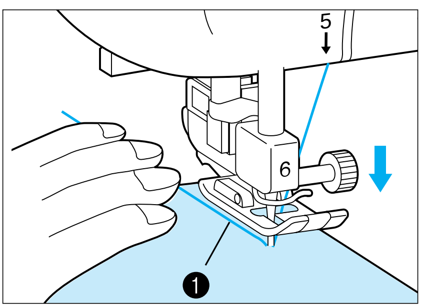


CAUTION

- **Be aware of the needle location at all times while sewing, and keep your hands away from all moving parts such as the needle, balance wheel and thread take-up lever, otherwise injuries may occur.**
- **Do not pull or push the fabric too hard while sewing, otherwise injuries may occur.**
- **Never use bent needles. They can easily break, which could result in injury.**



1. When the sewing machine is turned on, the straight stitch (left needle position) is automatically selected.
   ❶ Attach the presser foot indicated by the code that is displayed.
   ❷ Press this key before sewing with the optional side cutter installed.
   ❸ Press this key before you start sewing to automatically sew reverse or reinforcement stitches at the beginning and end of stitching. (Refer to page 36 for more details.)
   ❹ Press this key before you start sewing to automatically cut the threads after sewing. (Refer to page 37 for more details.)
   ❺ Press this key to display a stitch guide, which will help you select the best stitch for your specific need.
   ❻ Press this key to display the previous page.
   ❼ Press this key to display the next page.

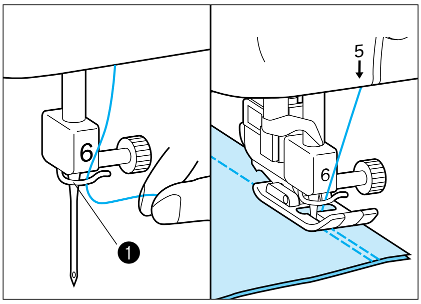


2. Place the fabric under the presser foot.

3. While holding the thread end and the fabric with your left hand, turn the balance wheel toward you with your right hand to lower the needle to the starting point of the stitching.
   ❶ Upper thread

Note

- You can begin sewing without pulling up the bobbin thread.
- Be sure to place the edge of the fabric at least 3 to 4 stitch lengths behind the presser foot so that the reverse/reinforcement stitches can be sewn.

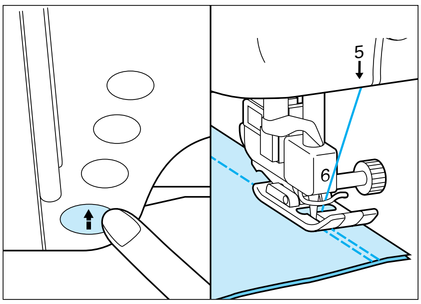


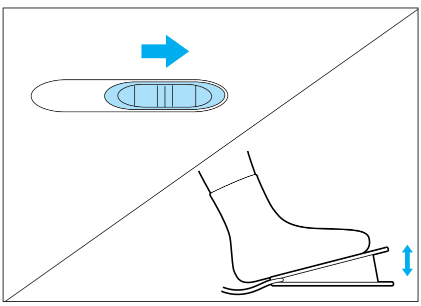
4. Lower the presser foot lever.

5. Press the reverse/reinforcement stitch button to sew reverse stitches, and then press the start/stop button. The machine starts sewing at slow speed.

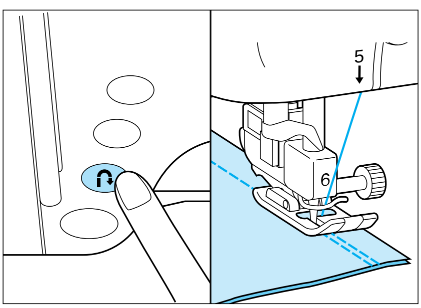
Note

- To pause sewing in order to turn or adjust the fabric, press the start/stop button. To restart sewing, press the start/stop button again.
- If automatic reverse/reinforcement stitching is turned on before you start sewing, pressing just the start/stop button automatically sews reverse/reinforcement stitches before sewing.

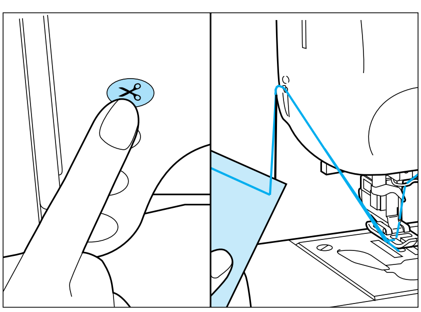




6. Adjust the sewing speed using either the sewing speed controller or the foot controller.



7. When the end of the stitching is reached, press the reverse/reinforcement stitch button to sew reverse stitches and stop the machine.



8. Press the thread cutter button to cut the threads.

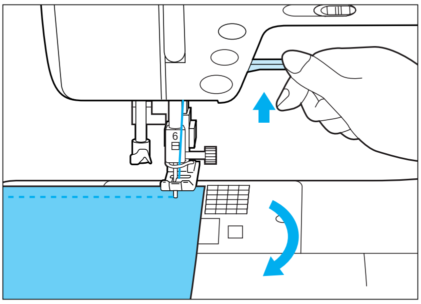
Note

- Cut thick thread (thicker than #30) with the cutter on the side of the machine as shown.
- If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reverse/reinforcement stitches, trims the threads and stops the machine.

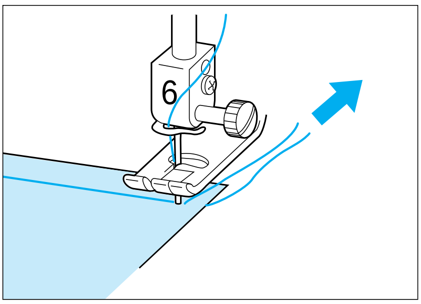
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USEFUL SEWING SKILLS

Sewing corners



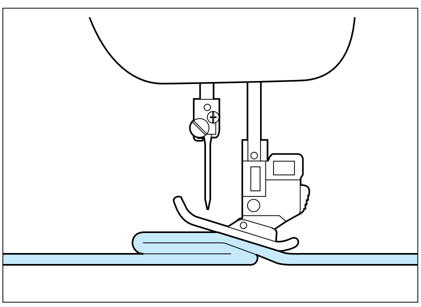
When you reach the corner, leave the needle in the fabric, raise the presser foot lever, and then turn the fabric. Lower the presser foot lever and continue sewing.



For stitches that are shorter than 13/64" (5.0 mm):

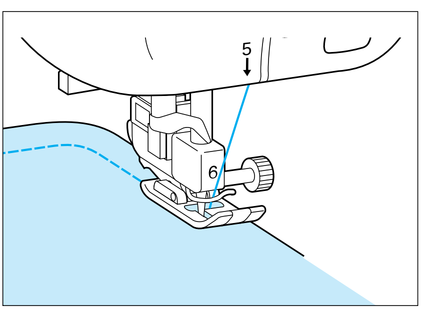
Before you begin sewing, baste the corner. After turning the fabric at the corner, continue sewing while pulling the basting thread out toward the back.

Sewing thick seams

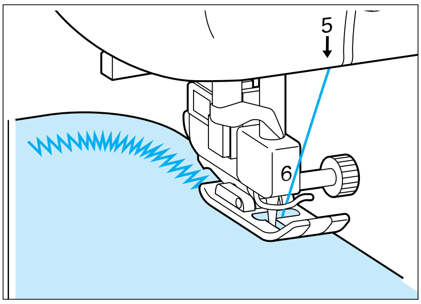


If the presser foot angles up as it approaches a thick seam, leave the needle in the fabric and raise the presser foot lever. After levelling off the sewing area by placing a piece of folded fabric or cardboard under the back of the presser foot, lower the presser foot lever and continue sewing.

Sewing curves



Sewing a curve with a straight stitch
Sew slowly while keeping the seam parallel with the fabric edge as you guide the fabric around the curve.



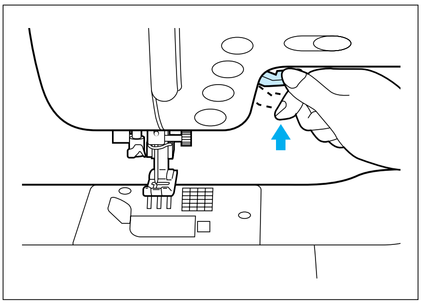
Sewing a curve with a zigzag stitch

Select a short stitch length in order to obtain a fine stitch and sew slowly while keeping the seam parallel with the fabric edge as you guide the fabric around the curve.

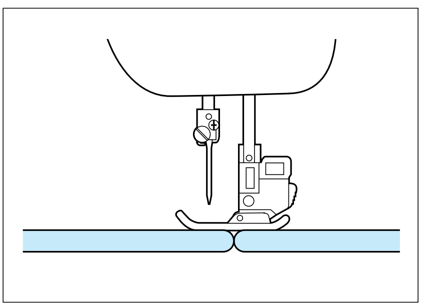
Note

For sharp corners, temporarily stop sewing while keeping the needle in the material, raise the presser foot lever, and then carefully turn the fabric while keeping the fabric edge aligned with the side of the presser foot. Lower the presser foot lever and continue sewing.

Sewing thick fabric

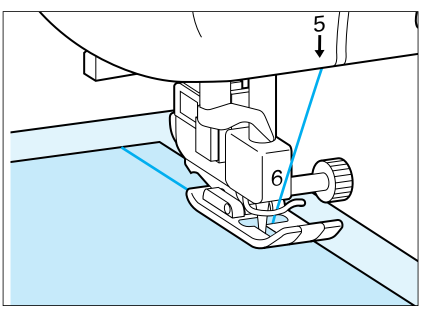


1. Raise the presser foot lever, and then raise it even higher so thicker fabrics can be placed under the presser foot.



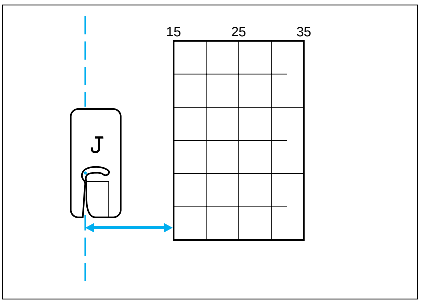
2. If the fabric does not feed at the beginning of sewing, place a piece of folded fabric or cardboard under the back of the presser foot to raise it.

Sewing thin fabric



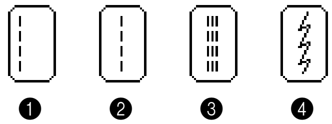
Place thin paper or stabilizer material under the fabric before sewing.

Using the needle plate

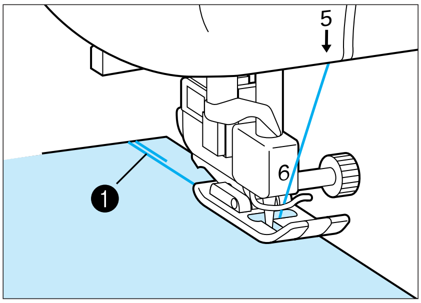


Align the edge of the material with a line on the needle plate to sew even seam allowances.

BASIC STITCHING



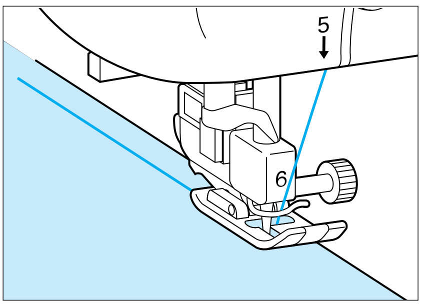
❶ **Straight (Left)** [straight stitch (left needle position)]: for normal sewing
❷ **Straight (Mid)** [straight stitch (center needle position)]: for normal sewing
❸ **Triple stretch stitch**: for reinforced stitching
❹ **Stretch stitch**: for sewing stretch fabric



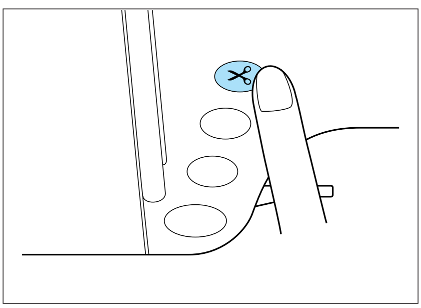
1. Baste or pin together the fabric pieces before sewing, attach presser foot **J**, and lower the presser foot lever.

2. Press the reverse/reinforcement stitch button to sew reverse/reinforcement stitches, and then press the start/stop button to continue sewing.
   ❶ Reverse stitches at beginning

Note
– Be sure to place the edge of the fabric at least 3 to 4 stitch lengths behind the presser foot so that the reverse/reinforcement stitches can be sewn.
– If automatic reverse/reinforcement stitching is turned on before you start sewing, pressing just the start/stop button automatically sews reverse/reinforcement stitches before sewing.



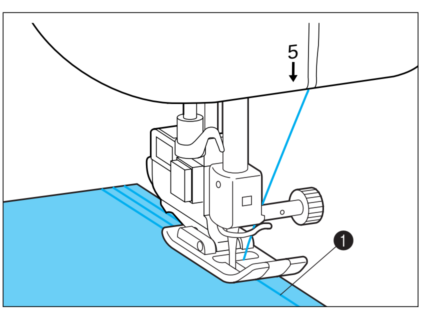
3. Slow down the sewing speed near the end of the stitching, and then press the reverse/reinforcement stitch button to sew reverse/reinforcement stitches and stop the machine.



4. Press the thread cutter button to cut the threads.

Note
If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reverse/reinforcement stitches, trims the threads and stops the machine.

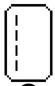
Reinforced stitching of stretch fabric



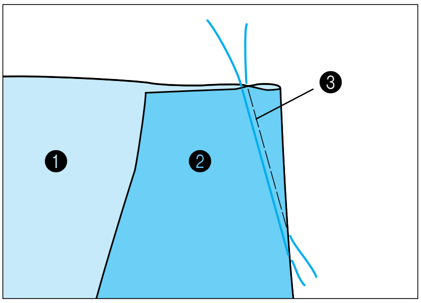
Baste the fabric beforehand and sew along the basting using a stretch stitch (or).

❶ Basting

Note
Do not pull the fabric while sewing.

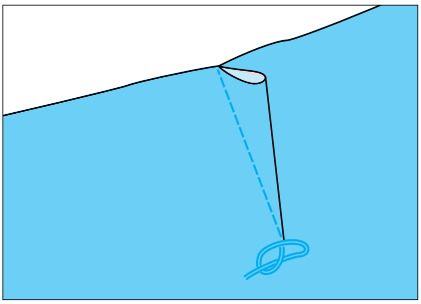


1 **Straight (Left)** [straight stitch (left needle position)]

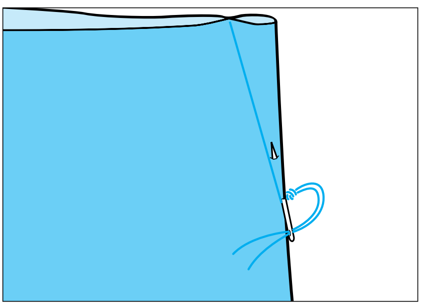


1. Attach presser foot **J**. Then, after sewing reverse stitches at the beginning of the dart, sew from the wide end to the narrow end without stretching the fabric.
   1 Right side of fabric
   2 Wrong side of fabric
   3 Basting

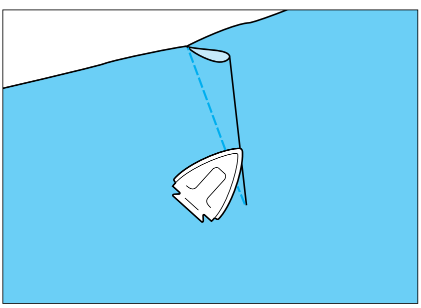
Note
If automatic reverse/reinforcement stitching is turned on before you start sewing, pressing just the start/stop button automatically sews reverse stitches before sewing.



2. Press the start/stop button to stop stitching without sewing reverse stitches at the end of the seam, cut the threads, leaving about 2" (5.0 cm) of thread on the ends, and then tie the two threads together at each end.



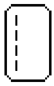
3. Insert the ends of the thread into the dart using a needle.



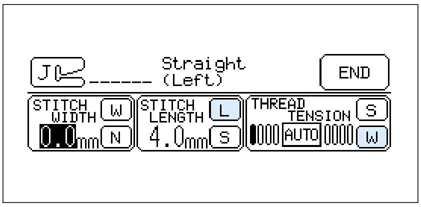
4. Iron the dart to one side so that it lays flat.

GATHERING

Create gathers on the waists of skirts or on shirt sleeves.


❶

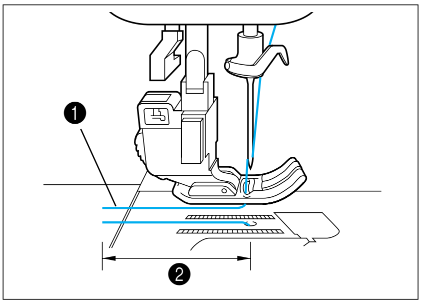
❶ **Straight (Left)** [straight stitch (left needle position)]



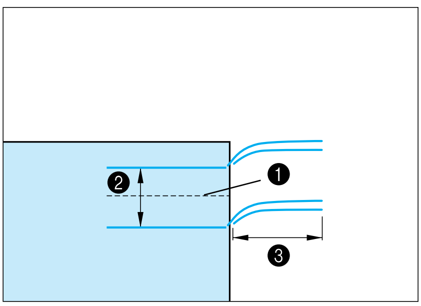
1. Set the stitch length to 5/32" (4.0 mm) and select a weak thread tension.

Note

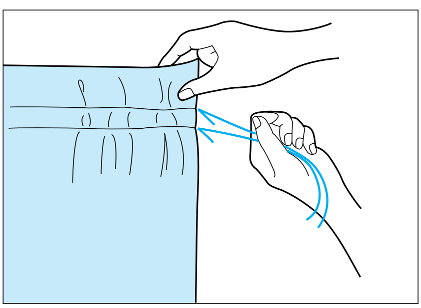
If you pressed [icon] then **GATHERING**, the stitch length automatically adjusts to 5/32" (4.0 mm) and a weak thread tension is automatically selected.



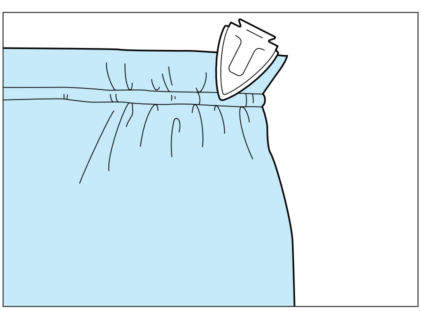
2. Attach presser foot **J**, and pull out about 2" (5.0 cm) of both the upper and bobbin threads.
   ❶ Upper thread
   ❷ Bobbin thread
   ❸ About 2" (5.0 cm)



3. Turn off automatic thread cutting and automatic reverse/reinforcement stitching, sew two rows of straight stitches parallel to the seamline, and then remove the fabric from the machine, leaving about 2" (5.0 cm) of thread on the ends.
   ❶ Seamline
   ❷ 3/8" to 1/2" (1.0 to 1.5 cm)
   ❸ About 2" (5.0 cm)

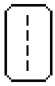


4. Pull the bobbin threads to obtain the desired amount of gather, and then tie the thread ends together.



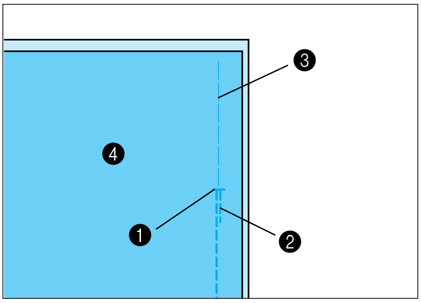
5. Smooth the gathers by ironing them.

ZIPPER INSERTING (CENTER AND SIDE APPLICATIONS)

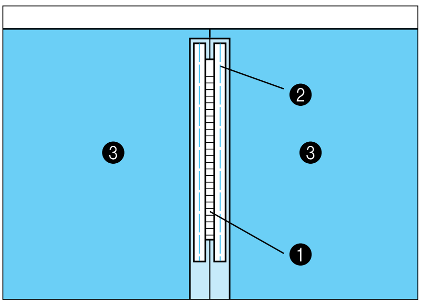


❶ **Straight (Mid)** [straight stitch (center needle position)]

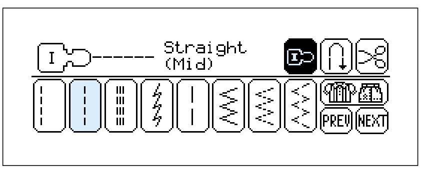
Inserting a centered zipper



1. Attach presser foot **J**, sew straight stitches up to the zipper opening, and then sew reverse stitches. Then, select a basting stitch and continue sewing to the edge of the fabric.
   ❶ End of zipper opening
   ❷ Reverse stitches
   ❸ Basting stitch
   ❹ Wrong side of fabric



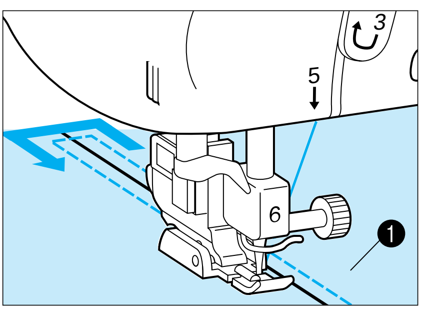
2. Press open the seam allowance, and then use the basting stitch to baste the zipper in place.
   ❶ Zipper
   ❷ Basting
   ❸ Wrong side of fabric



3. Press [**Straight (Mid)**], and then press (presser foot **I**). The thread tension automatically adjusts for presser foot **I**.

Note

If you pressed then **ZIPPER INSERTION**, the thread tension is automatically adjusted.

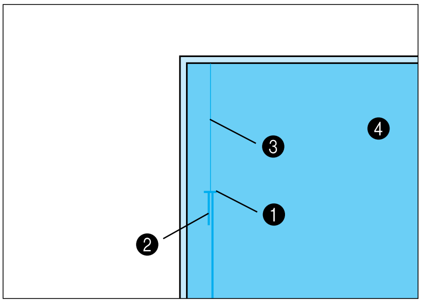


4. Attach the presser foot holder to the right pin of presser foot **I**, and topstitch around the zipper 25/64" (1.0 cm) from the edge of the pressed edge.
   ❶ Presser foot holder attached to right pin of presser foot **I**
   ❷ Right side of fabric

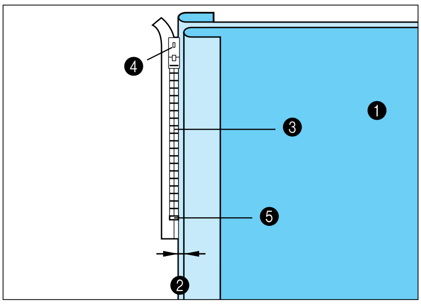
5. Remove the basting.

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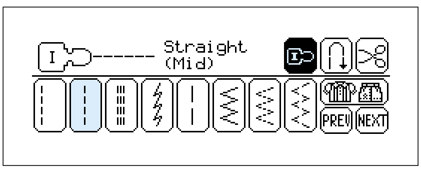
Inserting a side zipper



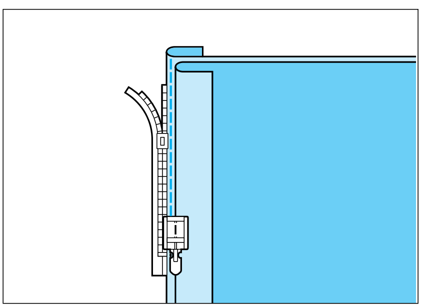
1. Attach presser foot **J**, sew straight stitches up to the zipper opening, and then sew reverse stitches. Then, select a basting stitch and continue sewing to the edge of the fabric.
   ❶ End of zipper opening
   ❷ Reverse stitches
   ❸ Basting stitch
   ❹ Wrong side of fabric



2. Press open the seam allowance and align the pressed edge with the zipper teeth, leaving 1/8" (3.0 mm) of space for the stitching.
   ❶ Wrong side of fabric
   ❷ Leave 1/8" (3.0 mm) for stitching
   ❸ Zipper teeth
   ❹ Zipper pull tab
   ❺ Zipper opening (base of zipper)

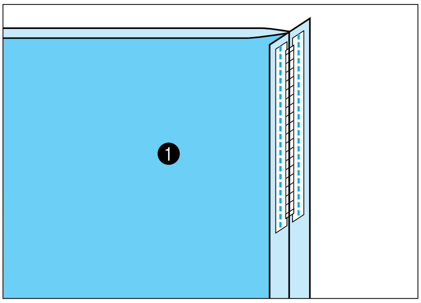


3. Select [**Straight (Mid)**], and then press (presser foot **I**). The thread tension automatically adjusts for presser foot **I**.

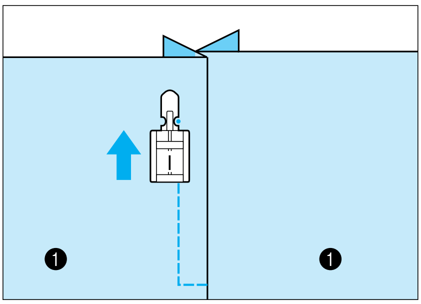


4. Attach the presser foot holder to the left pin of presser foot **I**, open the zipper, and then sew the bottom layer to the zipper from the top to base of the zipper.

Note
If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reverse stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reverse stitches, trims the threads and stops the machine.

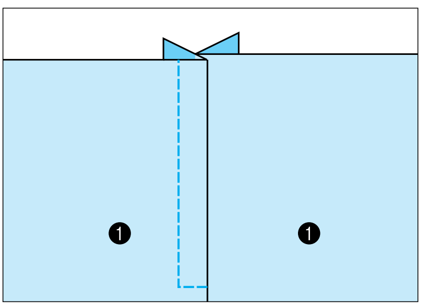


5. Close the zipper, turn over the fabric, and then sew the other side of the zipper to the fabric.
   1 Wrong side of fabric



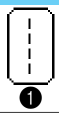
6. Turn the fabric over so that the right side of the fabric faces up, sew a straight stitch across the bottom of the zipper and along the left side to about 13/64" (5.0 cm) from the edge of the fabric.

7. Stop the machine with the needle in the fabric, raise the presser foot lever, and then remove the basting stitches.
   1 Right side of fabric

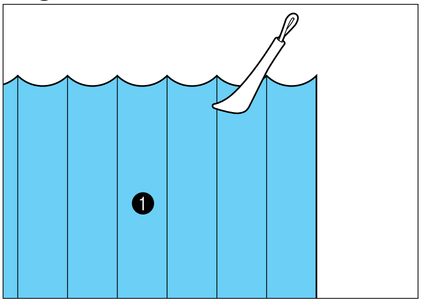


8. Move the zipper pull tab out of the way and continue sewing to the edge of the fabric.
   1 Right side of fabric

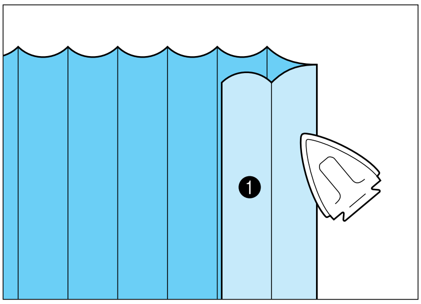
PINTUCK SEWING



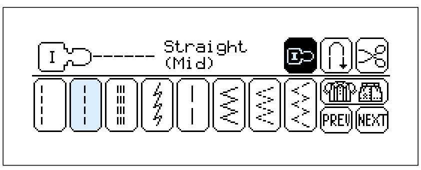
❶ **Straight (Mid)** [straight stitch (center needle position)]



1. Mark the positions of the folds on the wrong side of the fabric.
   ❶ Wrong side of fabric

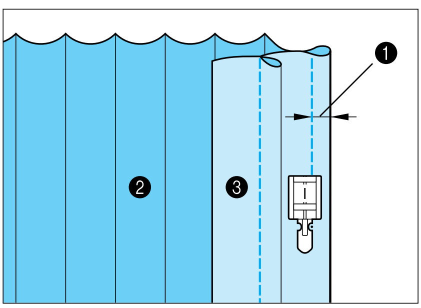


2. Fold over the fabric and iron only along the folds.
   ❶ Right side of fabric



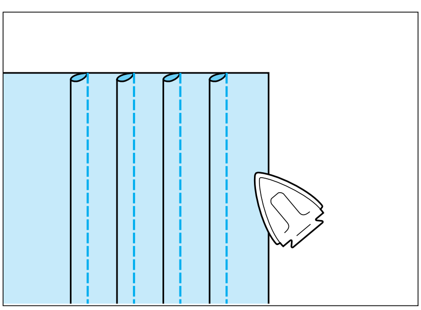
3. Press [**Straight (Mid)**], and then press (presser foot **I**). The thread tension automatically adjusts for presser foot **I**.

Note
If you pressed then **PINTUCK**, the thread tension is automatically adjusted.



4. Attach the presser foot holder to the right pin of presser foot **I**, and sew a straight stitch along each fold.
   ❶ Width of pintuck
   ❷ Wrong side of fabric
   ❸ Right side of fabric

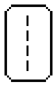
Note
If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reverse stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reverse stitches, trims the threads and stops the machine.



5. Iron the folds toward the same direction.

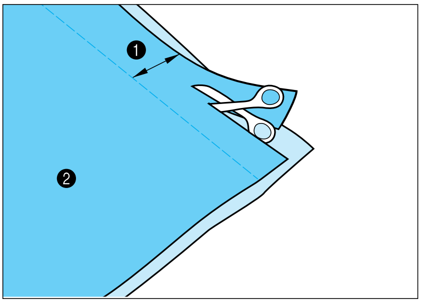
FLAT-FELL SEAM SEWING

Sew flat-fell seams to reinforce seams and for neatly finishing edges.



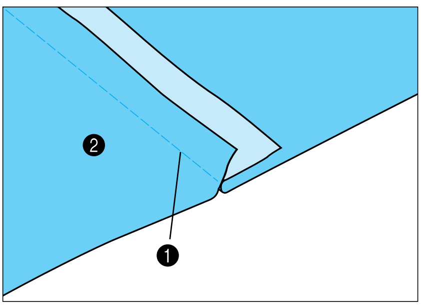
❶

❶ **Straight (Mid)** [straight stitch (center needle position)]

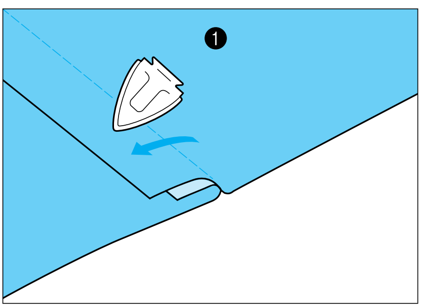


1. Attach presser foot **J**, sew the seam, and then cut off half of the seam allowance from the one that will lie flat.
   ❶ About 15/32" (1.2 cm)
   ❷ Wrong side of fabric

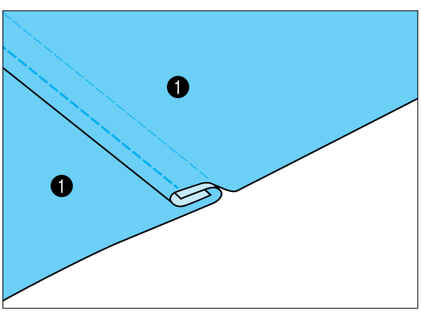
Note
If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reverse stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reverse stitches, trims the threads and stops the machine.



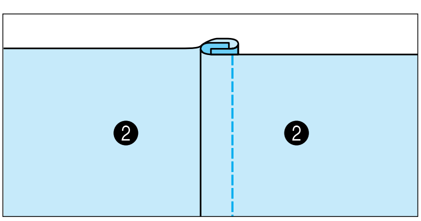
2. Spread out the fabric along the seamline.
   ❶ Seamline
   ❷ Wrong side of fabric



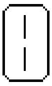
3. Iron both seam allowances toward the more narrow (cut) one.
   ❶ Wrong side of fabric



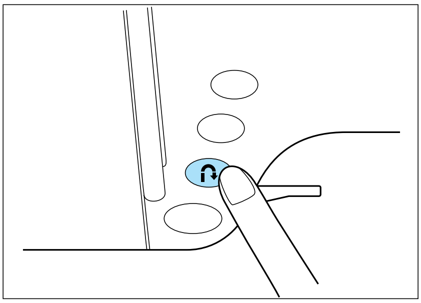
4. Fold the longer seam allowance around the more narrow one, and sew the edge of the fold so that the seam appears as shown.
   ❶ Wrong side of fabric
   ❷ Right side of fabric



BASTING


❶

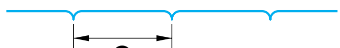
❶ **Basting stitch**



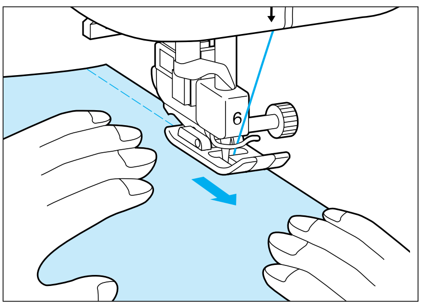
1. Attach presser foot **J** and lower the presser foot lever.

2. Press the reverse/reinforcement button to sew reinforcement stitches at the beginning of the basting.

Note
- – If you will not sew reinforcement stitches, raise the presser foot lever, hold the end of the upper thread, and then turn the balance wheel toward you with your right hand to pull up the bobbin thread. Pull about 2" (5.0 cm) of both the upper and lower threads out toward the rear of the machine.
- – The length of one stitch can be set between 13/64" and 1-3/16" (5.0 and 30.0 mm).


❶

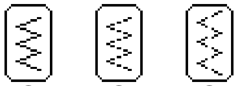
❶ Between 13/64" and 1-3/16" (5.0 and 30.0 mm)



3. Sew while keeping the fabric pulled tight.

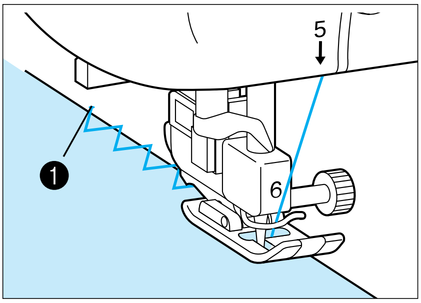
4. End the basting with reinforcement stitches.

ZIGZAG STITCHING



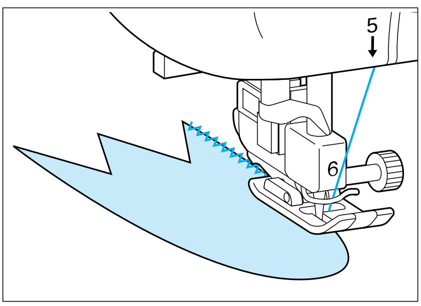
❶ **Zigzag stitch**: for normal zigzag sewing
❷ **Elastic zigzag**: for sewing stretch fabric
❸ **Elastic zigzag**: for sewing stretch fabric

Overcasting with a zigzag stitch



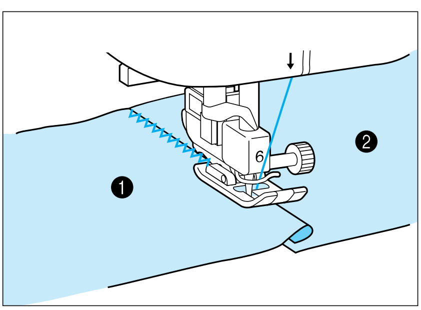
Sew the overcasting along the edge of the fabric with the needle dropping off the edge of the fabric at the right.
❶ Needle drop point

Appliqué sewing with a zigzag stitch



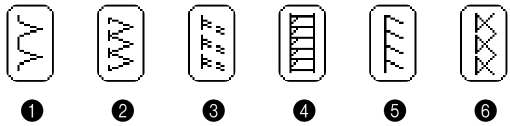
Before sewing an appliqué, attach it to the fabric either with adhesive or by basting it. Sew the zigzag stitch so that the needle drops off the edge of the appliqué.

Patchwork (crazy quilt) stitching



Fold over the desired width of the top fabric and position it over the lower fabric. Then, sew the zigzag stitch so that the stitching bridges both pieces of fabric.
❶ Upper fabric
❷ Lower fabric

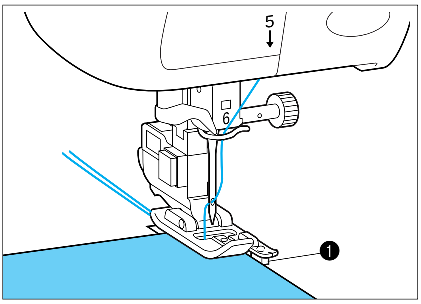
OVERCASTING

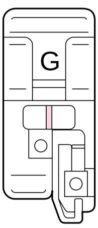


Overcasting
❶ for sewing thin and medium weight fabrics
❷ for sewing thick fabrics
❸ for sewing thick and medium weight stretch fabrics
❹ for sewing mediumweight stretch fabrics
❺ for sewing stretch fabrics
❻ for sewing stretch fabrics

Utility stitches that display [S/S] can be sewn using the side cutter. For details on installing and using the side cutter, refer to page 16.

Sewing with [stitch 1], [stitch 2] or [stitch 4]



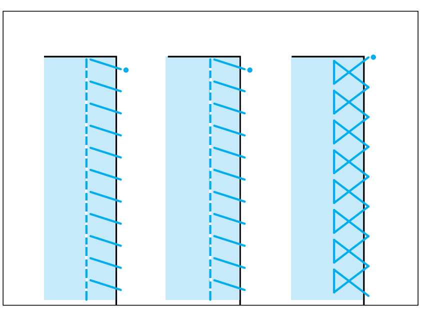


Attach presser foot **G**, lower the presser foot lever, and then sew the overcasting with the fabric edge against the guide of presser foot **G**.
❶ Guide

Note
If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reinforcement stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reinforcement stitches, trims the threads and stops the machine.

CAUTION
After the stitch width is adjusted, turn the balance wheel toward you by hand and check that the needle does not touch the presser foot. If the needle hits the presser foot and breaks, injuries may occur.

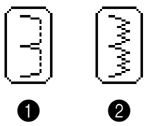
Sewing with [stitch 3], [stitch 5] or [stitch 6]



Attach presser foot **J**, and check that the needle drops slightly off the edge of the fabric before sewing.

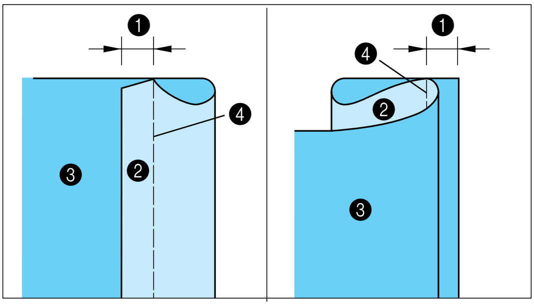
Note
If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reinforcement stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reinforcement stitches, trims the threads and stops the machine.

BLIND HEM STITCHING

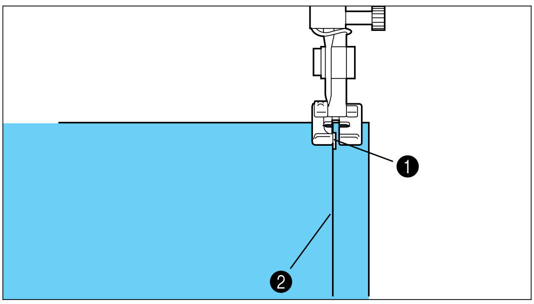


Blind hem stitch

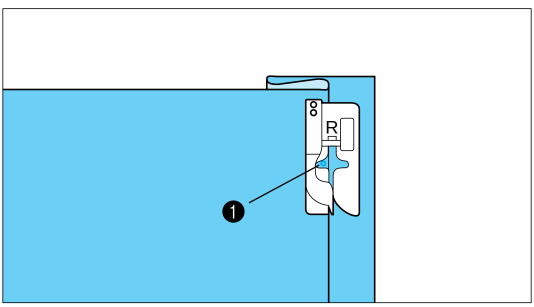
1. for sewing fabric other than stretch fabric
2. for sewing stretch fabric



1. Fold the fabric and baste it as illustrated. Then, fold the fabric once again as shown.
   1. 3/16" (0.5 cm)
   2. Right side of fabric
   3. Wrong side of fabric
   4. Basting stitch



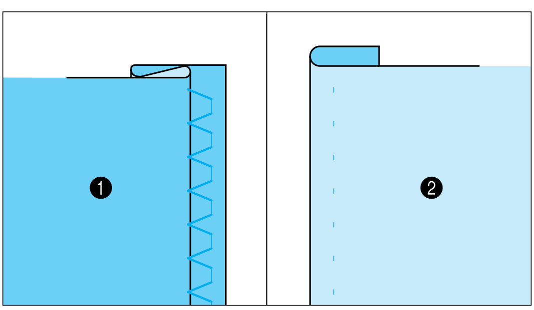
2. Attach blind hem foot **R**, lower the presser foot lever, and position the fabric under the presser foot so that the edge of the folded hem touches the guide of the presser foot.
   1. Guide
   2. Folded hem



3. With the **STITCH WIDTH** keys, adjust the needle position so that the needle slightly catches the fold of the hem, and then sew the fabric.
   1. Needle drop point

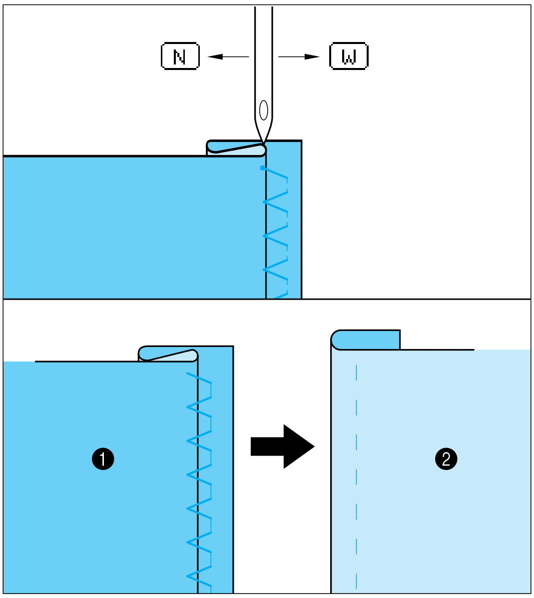
Note

If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reinforcement stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reinforcement stitches, trims the threads and stops the machine.

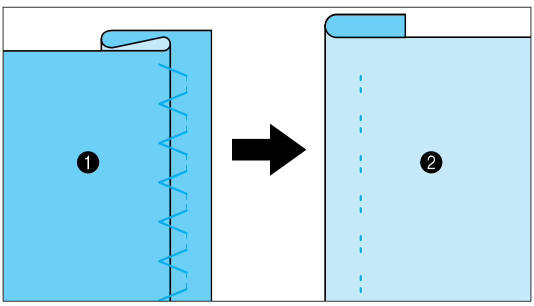


4. Turn over the fabric and remove the basting stitch.
   1. Wrong side of fabric
   2. Right side of fabric

Adjusting the needle position

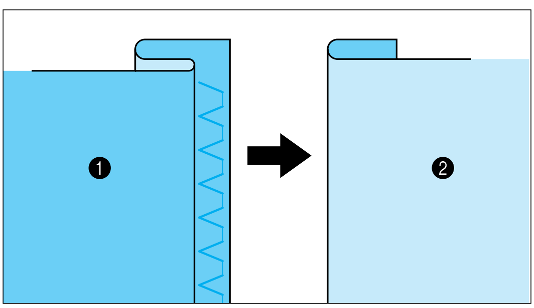


Press the **STITCH ADJUST** key, and then use the **STITCH WIDTH** keys [W] and [N] to adjust the needle position so that the needle slightly catches the fold of the hem.



If the needle catches too much of the hem fold, press the **STITCH WIDTH** key [W] to move the needle away from the fold.

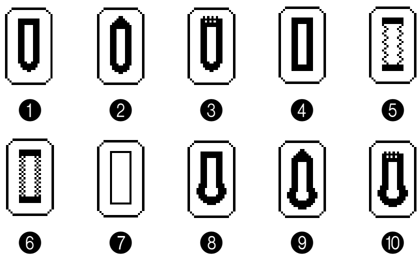
❶ Wrong side of fabric
❷ Right side of fabric



If the needle does not catch enough of the hem fold, press the **STITCH WIDTH** key [N] to move the needle closer to the fold.

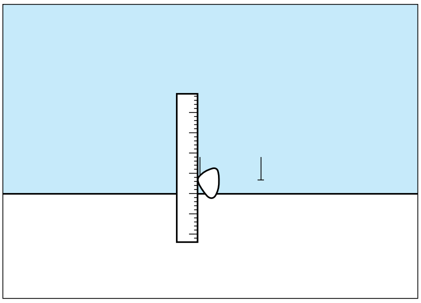
❶ Wrong side of fabric
❷ Right side of fabric

BUTTONHOLE STITCHING



Buttonhole

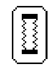
❶ for thin and medium weight fabrics (horizontal holes)
❷ for jeans and trousers
❸ for thick coats
❹ for thin or medium weight fabrics
❺ for stretch fabric with coarse weaves
❻ for stretch fabrics
❼ for making a bound buttonhole
❽ for suits and overcoats
❾ for jeans and trousers
❿ for thick coats

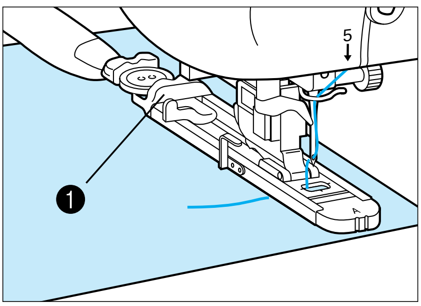


1. Mark the position and length of the buttonhole on the fabric.

Note

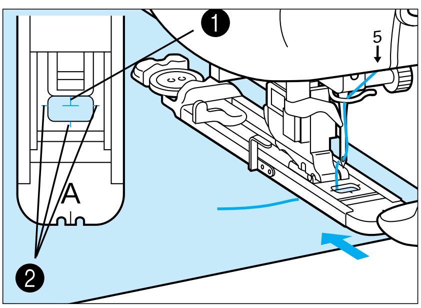
– The maximum buttonhole length is 1-3/16" (3 cm) (diameter + thickness of the button).

– Thick thread (#30) cannot be used when sewing with  and .

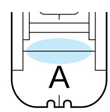


2. Attach buttonhole foot **A** and lower the presser foot lever, making sure that the upper thread passes underneath the buttonhole foot.

3. Pull out the button guide plate and insert the button that will be put through the buttonhole.
   ❶ Button guide plate



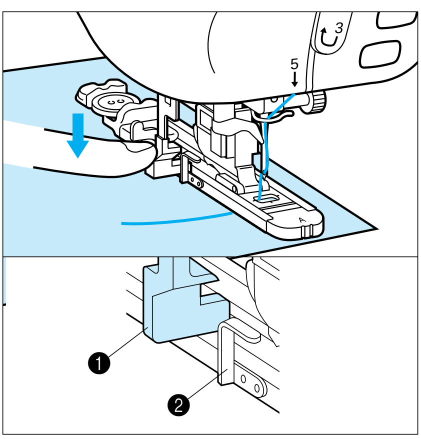
4. Slide the outside frame of the buttonhole foot backward as far as possible as shown in the illustration at the left, making sure that there is no gap behind the part of the foot marked "A".



Note

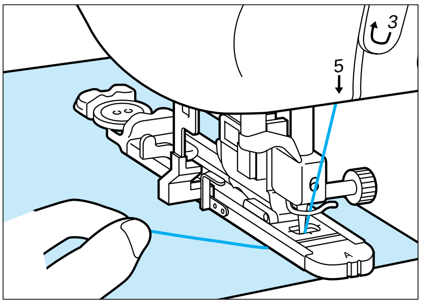
If the buttonhole foot is not slid back as far as possible, the buttonhole will not be sewn with the correct size.

5. Position the fabric under the buttonhole foot so that the red marks on the sides of the buttonhole foot align with the front end of the buttonhole marking and the red mark on the front of the foot is centered in the marking.
   ❶ Mark on fabric indicating position of buttonhole
   ❷ Red marks on buttonhole foot



6. Lower the buttonhole lever so that it is positioned behind the metal bracket on the buttonhole foot.
   ❶ Buttonhole lever
   ❷ Metal bracket on the buttonhole foot

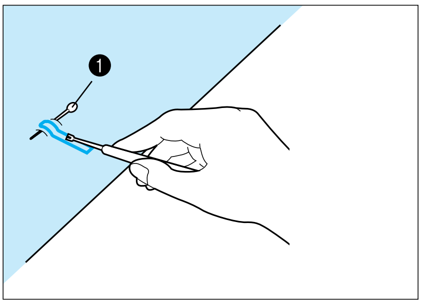
CONTENTS
SETTING UP
SEWING
UTILITY STITCHES
MY CUSTOM STITCH™ (CREATE YOUR OWN STITCH DESIGNS)
EMBROIDERING
MAINTENANCE
ERROR MESSAGES
SEWING CHART
PATTERNS (PROGRAMMED IN MACHINE)



7. Gently hold the end of the upper thread, and then start sewing. Feed the fabric carefully by hand while the buttonhole is sewn. Once sewing is completed, the machine automatically sews reinforcement stitches, and then stops.

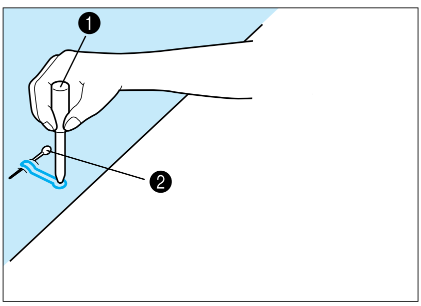
Note

– If automatic thread cutting is turned on before you start sewing, both threads are automatically cut after the reinforcement stitches are sewn.
– If the fabric does not feed (for example, because it is too thick), press the **STITCH LENGTH** key [L] to increase the stitch length.



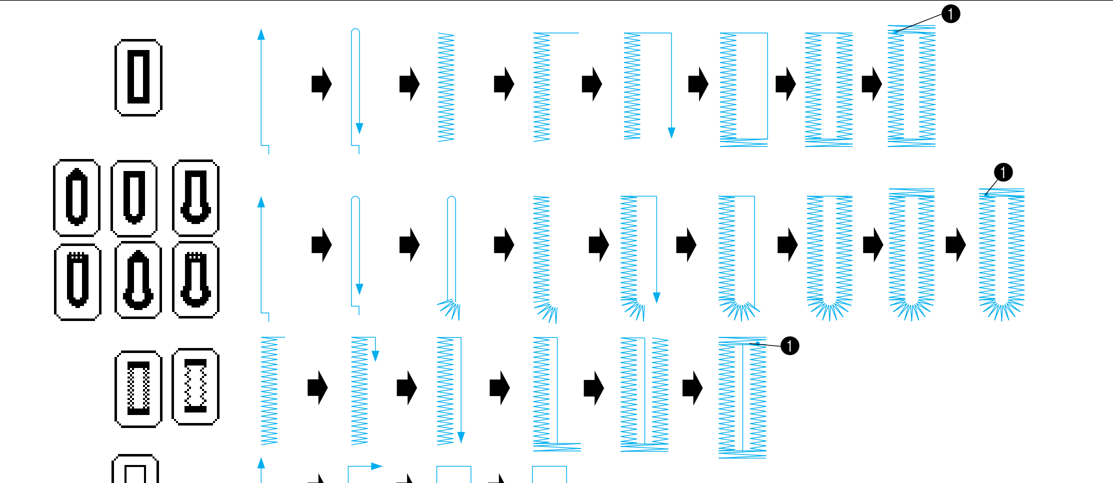
6. Cut open the buttonhole.

For normal buttonholes and rounded buttonholes:
Insert a pin along the inside of one of the bar tacks, and then insert the seam ripper into the center of the buttonhole and cut towards the pin.
❶ Pin



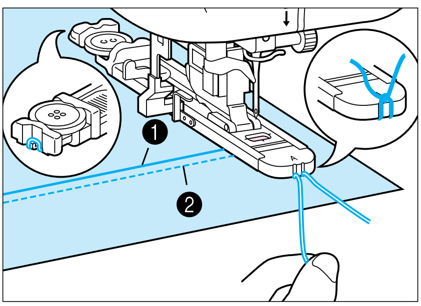
For keyhole buttonholes:
Use the eyelet punch to make a hole in the rounded end of the buttonhole. Then, insert a pin along the inside of one of the bar tacks, insert a seam ripper into the hole made with the eyelet punch, and cut towards the pin.
❶ Eyelet punch
❷ Pin

Sewing order of buttonholes



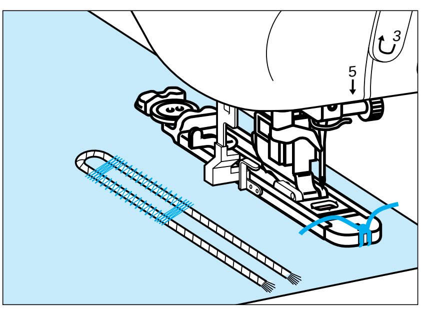
❶ Reinforcement stitches

Sewing stretch fabrics



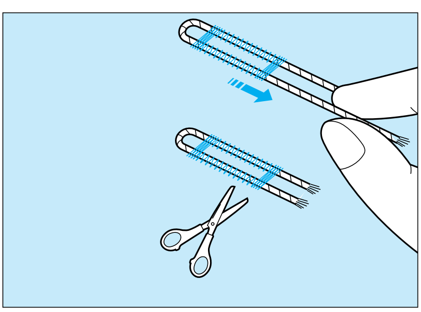
When sewing on stretch fabric with [buttonhole icon], sew the buttonhole stitches over a gimp thread.

1. Hook the gimp thread onto the front end of presser foot **A** so that it fits into the grooves, and then temporarily tie it there.



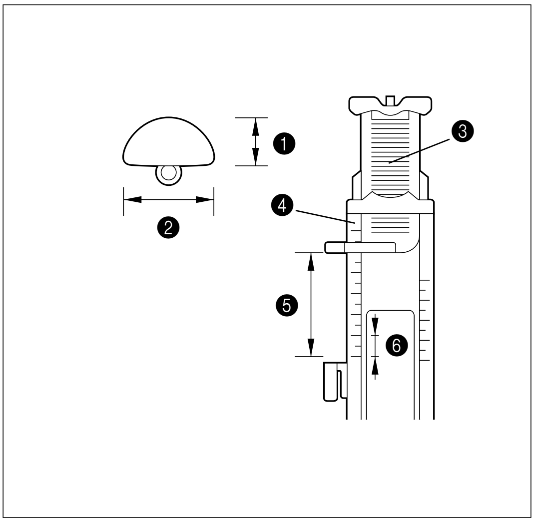
2. Lower the presser foot lever and start sewing.

Note
Set the stitch width to the width of the gimp thread.



3. Once sewing is completed, gently pull the gimp thread to remove any slack, and trim off any excess.

Odd-shaped buttons that do not fit into the button guide plate

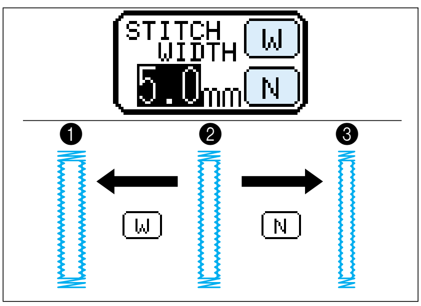


Add together the button diameter and its thickness, and then set the plate to the calculated value.

Example: For a button with a diameter of 19/32" (1.5 cm) and a thickness of 25/64" (1.0 cm), the scale should be set at 1" (2.5 cm)

❶ Thickness [25/64" (1.0 cm)]
❷ Diameter [19/32" (1.5 cm)]
❸ Button guide plate
❹ Scale
❺ Diameter + thickness [1" (2.5 cm)]
❻ 13/64" (0.5 cm)

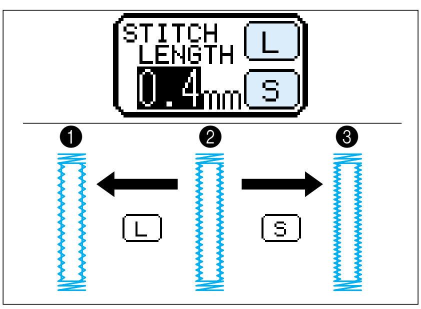
Adjusting the buttonhole width



Press the **STITCH ADJUST** key, and then use the **STITCH WIDTH** keys W and N to adjust the width of the buttonhole.

❶ Pressing **STITCH WIDTH** key W increases the width of the buttonhole.
❷ Standard buttonhole width
❸ Pressing **STITCH WIDTH** key N decreases the width of the buttonhole.

Adjusting the stitch length of the buttonhole



Press the **STITCH ADJUST** key, and then use the **STITCH LENGTH** keys L and S to adjust the stitch length of the bar tacks.

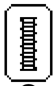
❶ Pressing **STITCH LENGTH** key L lengthens the bar tack stitch length.
❷ Standard buttonhole stitch length
❸ Pressing **STITCH LENGTH** key S shortens the bar tack stitch length.

Note

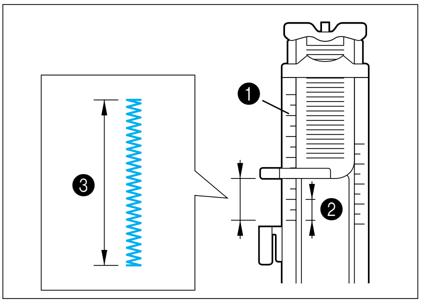
If the fabric does not feed (for example, because it is too thick), press the **STITCH LENGTH** key L to increase the stitch length.

BAR TACK STITCHING

Use bar tacks to reinforce points that will be subject to strain, such as pocket corners, belt loops, or the tops of pleats.

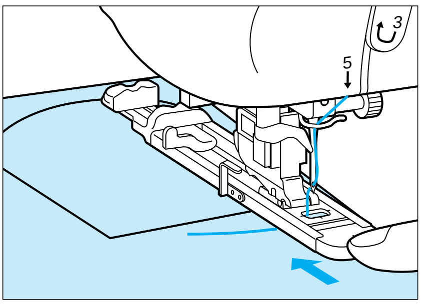


❶ **Bar tack**

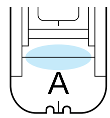


1. After attaching the pocket according to the pattern's instructions, attach buttonhole foot **A** and set the scale to the desired length of the bar tack.
   ❶ Scale
   ❷ 13/64" (0.5 cm)
   ❸ Length of bar tack

Note
Bar tacks can be between 13/64" and 1-3/16" (0.5 and 3.0 cm) long, however, the normal bar tack length is between 13/64" and 25/64" (0.5 and 1.0 cm).

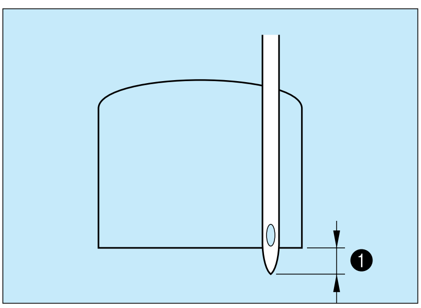


2. Position the pocket as shown with the top of the pocket facing you and lower the presser foot lever, making sure that the upper thread passes underneath the buttonhole foot.

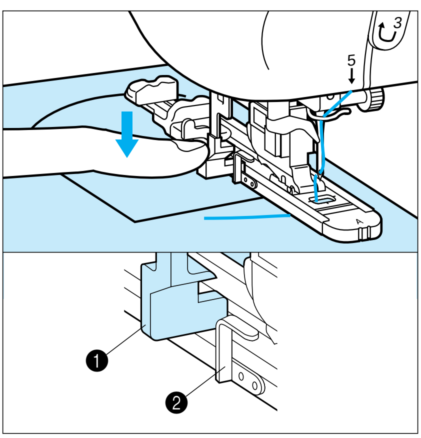


3. Slide the outside frame of the buttonhole foot backward as far as possible as shown in the illustration at the left, making sure that there is no gap behind the part of the foot marked "A".

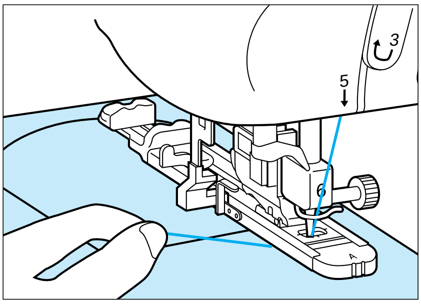
Note
If the buttonhole foot is not slid back as far as possible, the bar tack will not be sewn with the correct size.



4. Check that the needle drops at the corner of the pocket, and then move the pocket back 5/64" (2.0 mm).
   ❶ 5/64" (2.0 mm)



5. Lower the buttonhole lever so that it is positioned behind the metal bracket on the buttonhole foot.
   ❶ Buttonhole lever
   ❷ Metal bracket on the buttonhole foot



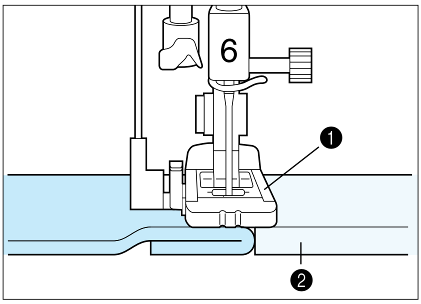
6. Gently hold the end of the upper thread, and then press the start/stop button to start the machine. Once sewing is completed, the machine automatically sews reinforcement stitches, and then stops.

Note

– If automatic thread cutting is turned on before you start sewing, both threads are automatically cut after the reinforcement stitches are sewn.

– If the fabric does not feed (for example, because it is too thick), press the **STITCH LENGTH** key [L] to increase the stitch length.

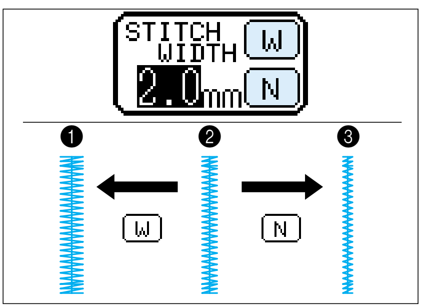
Sewing bar tacks on thick fabrics



Place a piece of folded fabric or cardboard beside the fabric being sewn to level off the buttonhole foot and allow for easier feeding.

1. Buttonhole foot
2. Folded fabric or cardboard

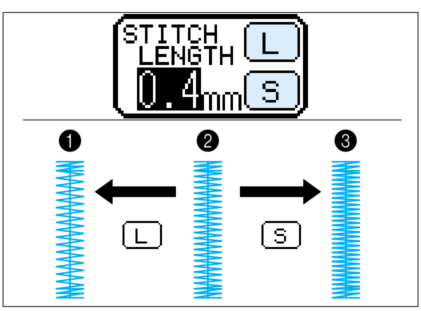
Adjusting the bar tack width



Press the **STITCH ADJUST** key, and then use the **STITCH WIDTH** keys [W] and [N] to adjust the width of the bar tack.

1. Pressing **STITCH WIDTH** key [W] increases the width of the bar tack.
2. Standard bar tack width
3. Pressing **STITCH WIDTH** key [N] decreases the width of the bar tack.

Adjusting the stitch length of the bar tack



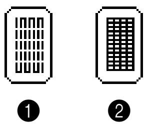
Press the **STITCH ADJUST** key, and then use the **STITCH LENGTH** keys [L] and [S] to adjust the stitch length of the bar tack.

1. Pressing **STITCH LENGTH** key [L] lengthens the bar tack stitch length.
2. Standard bar tack stitch length
3. Pressing **STITCH LENGTH** key [S] shortens the bar tack stitch length.

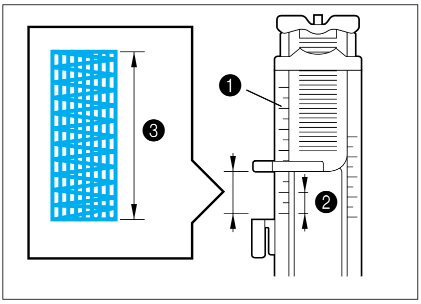
Note

If the fabric does not feed (for example, because it is too thick), press the **STITCH LENGTH** key [L] to increase the stitch length.

DARNING

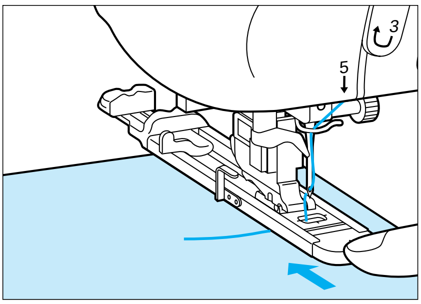


Darning
❶ for medium weight fabric
❷ for thick fabric

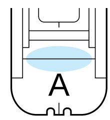


1. Attach buttonhole foot **A** and set the scale to the desired length of the darning.
   ❶ Scale
   ❷ 13/64" (0.5 cm)
   ❸ Length of darning

Note
The maximum length of the darning is 1-3/16” (3.0 cm).

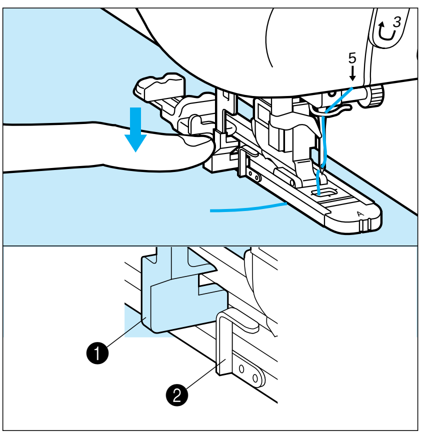


2. Check that the needle drops at the desired position and lower the presser foot lever, making sure that the upper thread passes underneath the buttonhole foot.

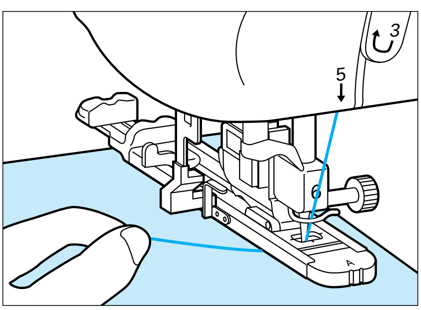


3. Slide the outside frame of the buttonhole foot backward as far as possible as shown in the illustration at the left, making sure that there is no gap behind the part of the foot marked “A”.

Note
If the buttonhole foot is not slid back as far as possible, the darning will not be sewn with the correct size.



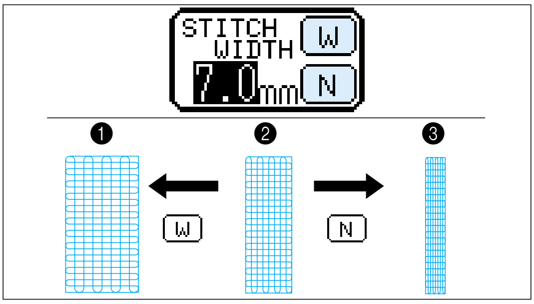
4. Lower the buttonhole lever so that it is positioned behind the metal bracket on the buttonhole foot.
   ❶ Buttonhole lever
   ❷ Metal bracket on the buttonhole foot



5. Gently hold the end of the upper thread, and then press the start/stop button to start the machine. Once sewing is completed, the machine automatically sews reinforcement stitches, and then stops.

Note
If automatic thread cutting is turned on before you start sewing, both threads are automatically cut after the reinforcement stitches are sewn.

Adjusting the darning width



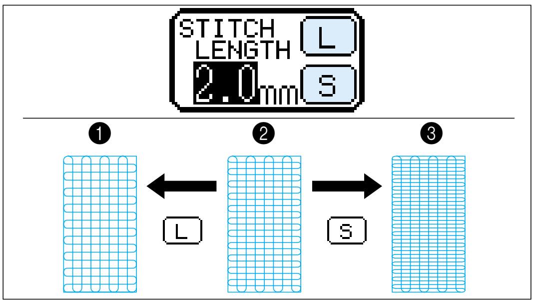
Press the **STITCH ADJUST** key, and then use the **STITCH WIDTH** keys [W] and [N] to adjust the width of the darning.

❶ Pressing **STITCH WIDTH** key [W] increases the width of the darning.

❷ Standard darning width

❸ Pressing **STITCH WIDTH** key [N] decreases the width of the darning.

Adjusting the stitch length of the darning



Press the **STITCH ADJUST** key, and then use the **STITCH LENGTH** keys [L] and [S] to adjust the stitch length of the darning.

❶ Pressing **STITCH LENGTH** key [L] lengthens the darning stitch length (makes it less dense).

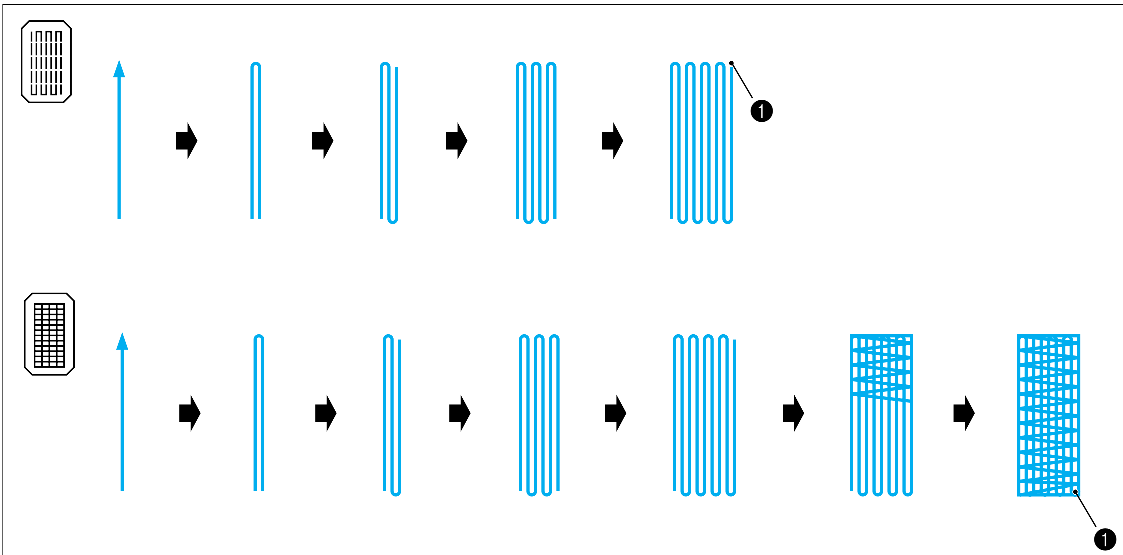
❷ Standard darning stitch length

❸ Pressing **STITCH LENGTH** key [S] shortens the darning stitch length (makes it more dense).

Note

If the fabric does not feed (for example, because it is too thick), press the **STITCH LENGTH** key [L] to increase the stitch length.

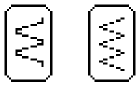
Darning stitch cycle



❶ Reinforcement stitches

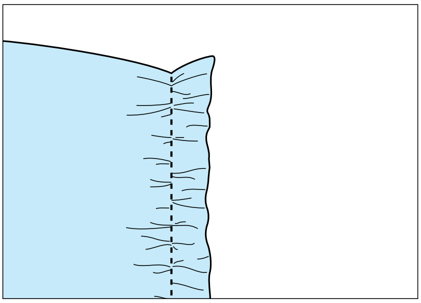
TAPE ATTACHING

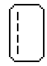
Use this stitch to attach tape to thin or medium weight fabric.



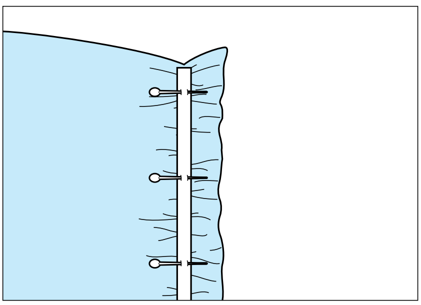
❶ ❷

❶ **Tape attaching**
❷ **Elastic zigzag**

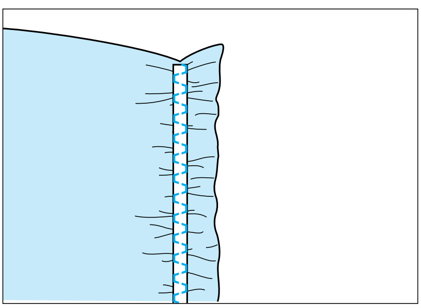


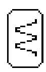
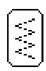
1. Attach presser foot **J**, press  [**Straight (Left)**], set the stitch length to 5/32" (4.0 mm) and select a weak thread tension.

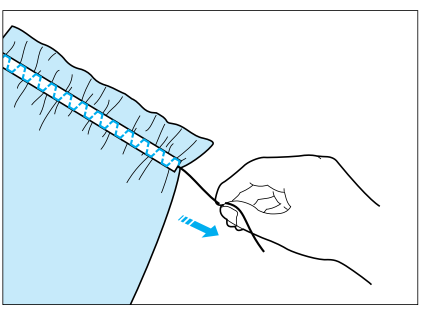
2. Pull up the bobbin thread (See page 27 for details.), turn off automatic thread cutting and automatic reverse/ reinforcement stitching, sew a straight stitch, and then pull the bobbin thread to obtain the desired amount of gather.



3. Place the tape on top of the seam that you have just sewn and secure it with pins.



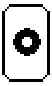
4. Press  or  and sew along the top of the tape.



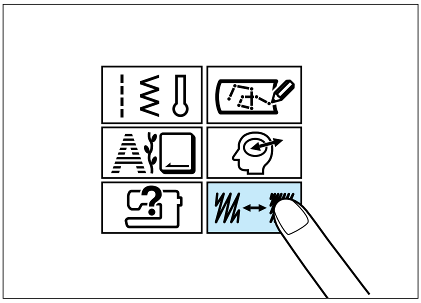
5. Pull out the straight stitch threads.

EYELET STITCHING

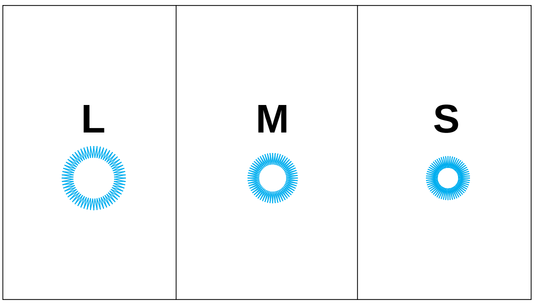
Use this stitch for making eyelets, such as on belts.



1 **Eyelet**

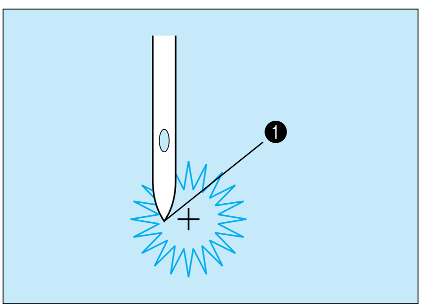


1. Press the **STITCH ADJUST** key, and then select the eyelet size.



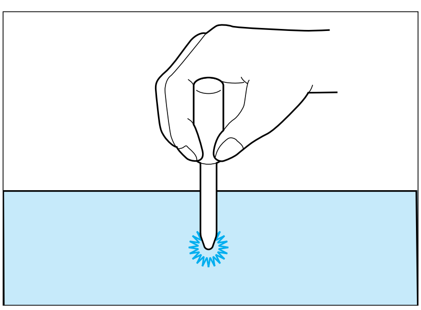
(Shown in actual size.)

L (large): 9/32" (7.0 mm)
M (medium): 15/64" (6.0 mm)
S (small): 13/64" (5.0 mm)



2. Attach presser foot **N**.
3. Check that the needle drops at the desired position, lower the presser foot lever, and then start sewing. Once sewing is completed, the machine automatically sews reinforcement stitches, and then stops.
   1 Needle drop point

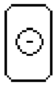
Note
If automatic thread cutting is turned on before you start sewing, both threads are automatically cut after the reinforcement stitches are sewn.



4. Make a hole in the center with an eyelet punch.

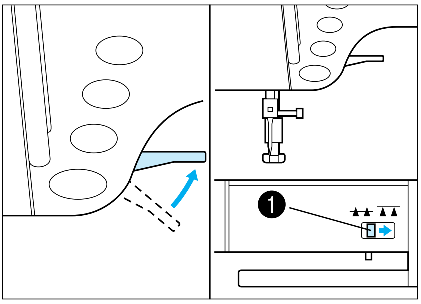
BUTTON SEWING

Use this stitch to attach buttons.

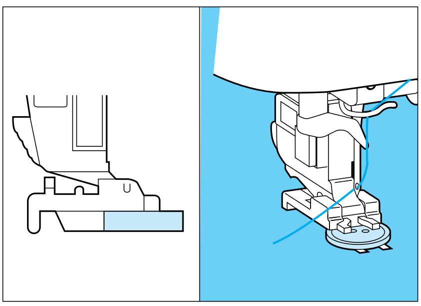

❶

❶ **Button sewing**

Attaching two-hole buttons

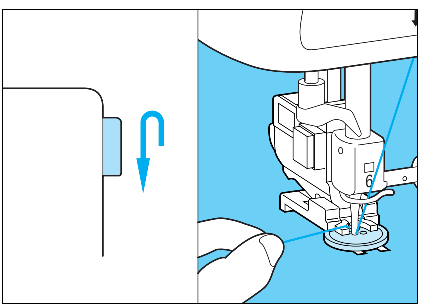


1. Raise the presser foot lever and slide the feed dog position switch to the right to lower the feed dogs.
   ❶ Feed dog position switch



2. Attach button sewing foot **M**, place the button into the presser foot, and then lower the presser foot lever.

3. Turn off automatic thread cutting.

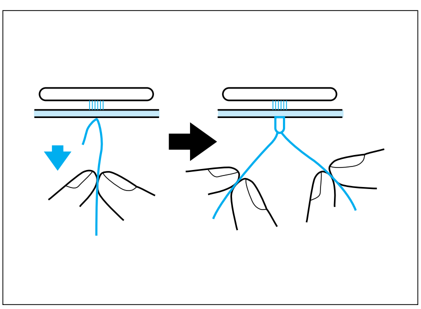


4. Gently hold the end of the upper thread, turn the balance wheel to check that the needle correctly goes into each hole in the button, and then start sewing. Once sewing is completed, the machine automatically stops.

Note

– To adjust the stitch width, press the **STITCH ADJUST** key, and then use the **STITCH WIDTH** keys [W] and [N] to adjust the stitch width to the distance between the button holes.

– If extra strength is needed to secure the button, perform the button sewing operation again.



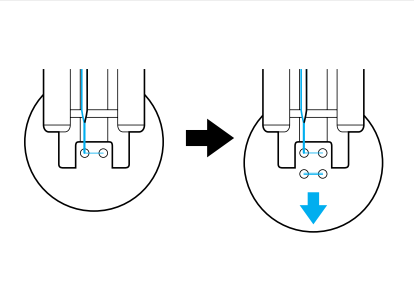
5. Remove the fabric, leaving plenty of thread on the ends

6. From the wrong side of the fabric, pull the end of the bobbin thread to pull the upper thread through to the wrong side of the fabric. Tie the two thread ends together and cut the threads.

Note

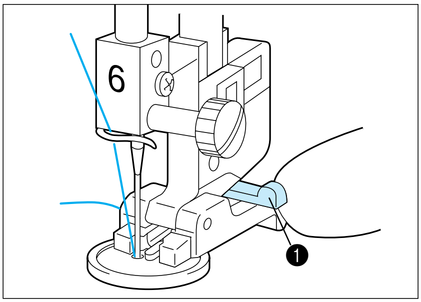
Remember to return the feed dogs to their original position.

Attaching four-hole buttons

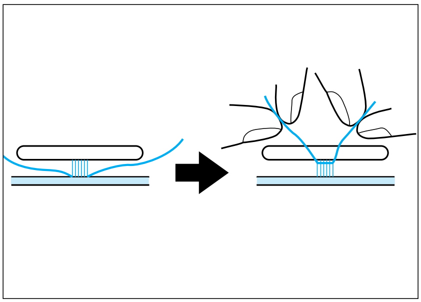


First, sew the two holes which are closest to you. Once they have been sewn, raise the presser foot lever, move the fabric so that the needle goes into the next two holes, and then sew them in the same way.

Attaching a shank to the button

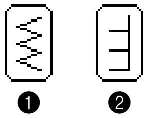


1. Pull the shank lever toward you before sewing.
   ❶ Shank lever
2. After sewing is completed, remove the fabric from the sewing machine.

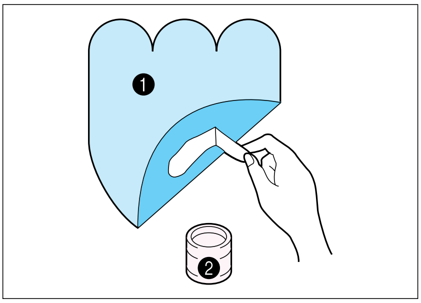


3. Pull the two ends of the upper thread between the button and the fabric, wind them around the shank, and then tie them firmly together.
4. Tie the ends of the bobbin thread together from the wrong side of the fabric.

APPLIQUÉ STITCHING

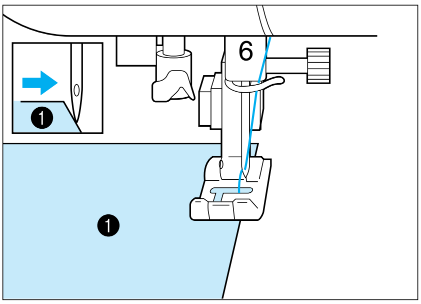


❶ Zigzag stitch
❷ Appliqué



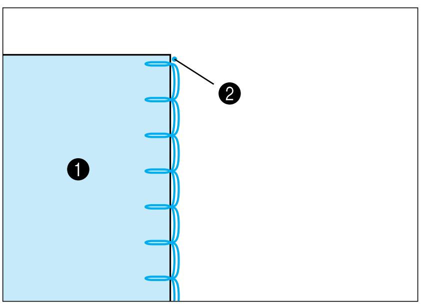
1. Use fabric glue or a basting stitch to attach the appliqué to the fabric.
   ❶ Appliqué
   ❷ Fabric glue

Note
The appliqué should be attached with fabric glue or a basting stitch so that it will not move during sewing.



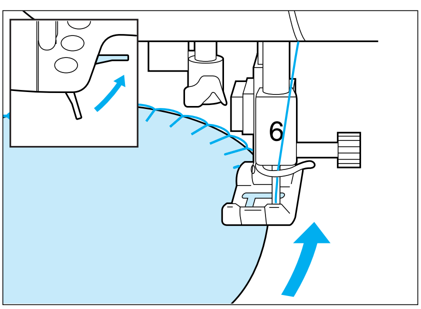
2. Attach presser foot **J**, and check that the needle drops slightly off the edge of the appliqué before starting to sew.
   ❶ Appliqué

Note
If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reinforcement stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reinforcement stitches, trims the threads and stops the machine.



3. Sew reinforcement stitches to finish sewing.
   ❶ Appliqué
   ❷ Needle drop point

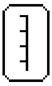
Sewing around corners of the appliqué



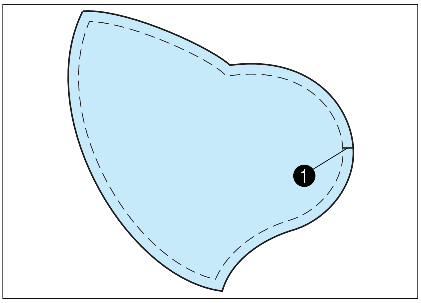
1. Stop the machine with the needle positioned outside the appliqué.

2. Raise the presser foot lever, and then turn the fabric as needed to change the sewing direction.

APPLIQUÉ QUILT STITCHING

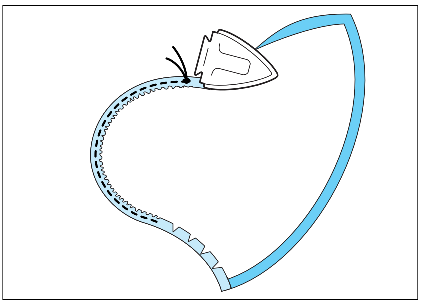


❶

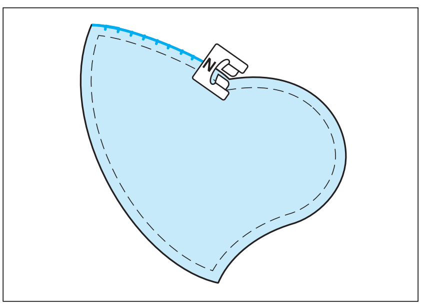


❶ **Appliqué**

1. Trace the pattern onto the appliqué fabric, and then cut around it leaving an extra margin of between 3/256" and 5/256" (0.3 and 0.5 mm).
   ❶ Seam margin (3/256" to 5/256" (0.3 to 0.5 mm))



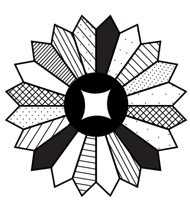
2. Cut a piece of thick paper to the exact size of the pattern, center it in the fabric, and then fold over the seam margin using an iron.
3. Take away the thick paper.



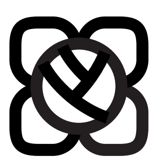
4. Turn the fabric over and attach it in place by sewing basting stitches around the edge.
5. Attach monogramming foot **N**, press , and then sew around the edge, while making sure that the needle drops outside of the pattern as close to the edge as possible.

Note
If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reinforcement stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reinforcement stitches, trims the threads and stops the machine.

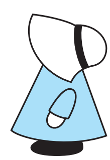
Sample patterns for appliqué quilts



❶



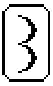
❷



❸

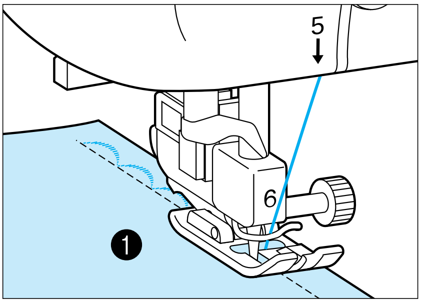
❶ Dresden plate
❷ Stained glass
❸ Sunbonnet Sue

SCALLOP STITCHING



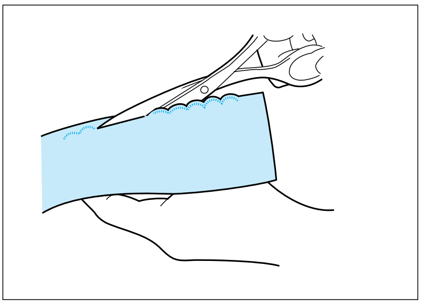
❶

❶ **Scallop stitch**



1. Attach presser foot **N**, and sew scallop stitches along the edge of the fabric, making sure not to sew directly on the edge of the fabric.
   ❶ Right side of fabric

Note
If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reinforcement stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reinforcement stitches, trims the threads and stops the machine.



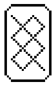
2. Trim carefully along the stitches, making sure not to cut them.

Note
There are products available on the market that will “seal” the trimmed areas. This gives the edges a more finished appearance.

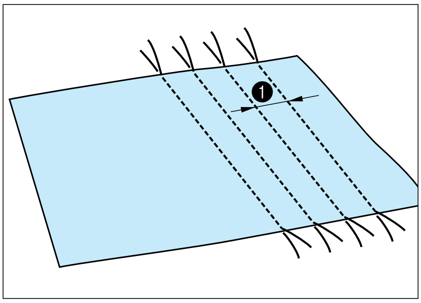
CONTENTS
SETTING UP
SEWING
UTILITY STITCHES
MY CUSTOM STITCH™ (CREATE YOUR OWN STITCH DESIGNS)
EMBROIDERING
MAINTENANCE
ERROR MESSAGES
SEWING CHART
PATTERNS (PROGRAMMED IN MACHINE)

SMOCKING STITCHING

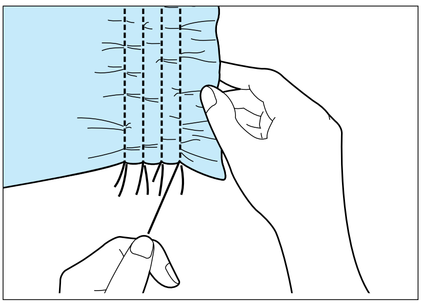
Use this stitch to create decorative smocking on clothing.


❶

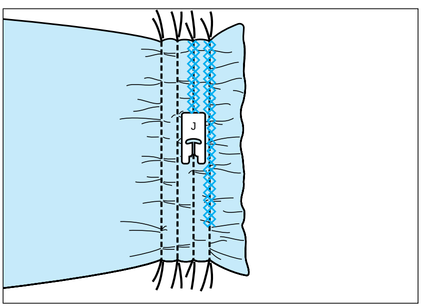
❶ **Smocking stitch**



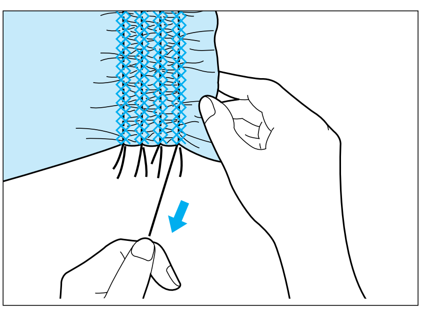
1. Press [**Straight (Left)**], set the stitch length to 5/32"(4.0 mm), and select a weak thread tension.
2. Sew straight stitches at intervals of 25/64" (1.0 cm).
   ❶ About 25/64" (1.0 cm)



3. Pull the bobbin threads to obtain the desired amount of gather, and then smooth the gathers by ironing them.

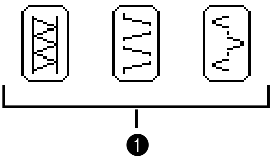


4. Attach presser foot **J**, press , and sew over the straight stitches.

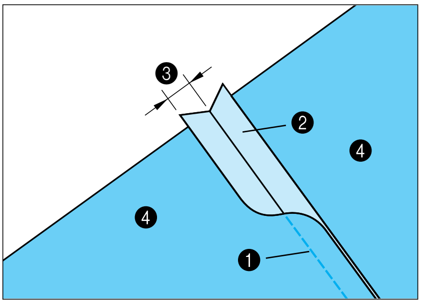


5. Pull out the straight stitch threads to remove them.

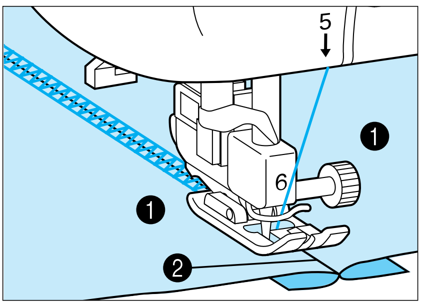
PATCHWORK STITCHING



❶ Patchwork stitch



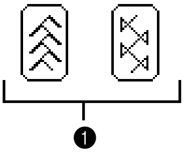
1. Align the right sides of the two pieces of fabric and sew them together with a straight stitch. Open up the seam allowances [about 25/64" (1.0 cm)] and press them flat.
   - ❶ Straight stitch
   - ❷ Seam allowance
   - ❸ 25/64" (1.0 cm)
   - ❹ Wrong side of fabric



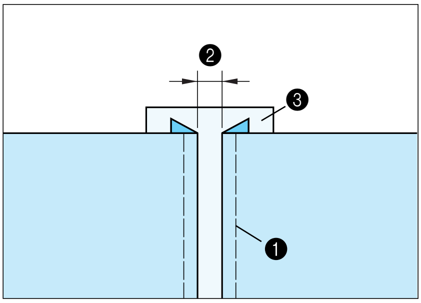
2. Attach presser foot **J**, center it on the seamline, and then sew over the seam using one of the patchwork stitches shown above.
   - ❶ Right side of fabric
   - ❷ Seamline

FAGOTING

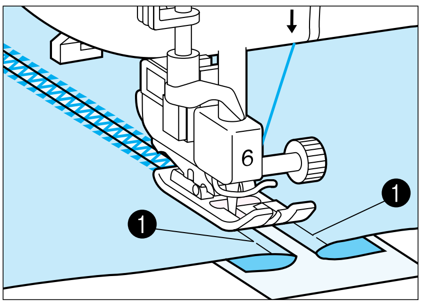
Use these stitches to sew decorative stitches across an open seam.



❶ **Fagoting**



1. Baste the two pieces of fabric onto thin paper or a water-soluble stabilizer sheet.
   ❶ Basting stitch
   ❷ 5/32" (0.4 cm)
   ❸ Thin paper or stabilizer sheet

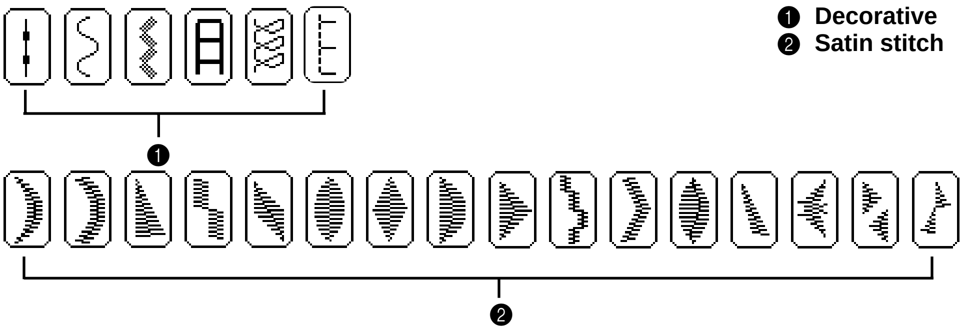


2. Attach presser foot **J**, center it on the paper between the folded fabric edges and sew the fagoting.
   ❶ Basting stitches

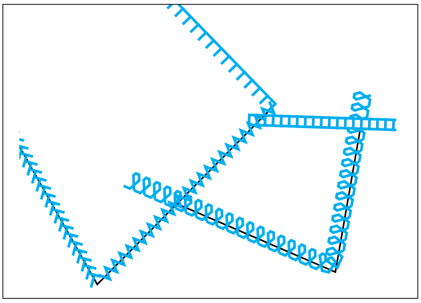
Note

– Use thicker threads (#30).
– After sewing, remove the paper.

DECORATIVE STITCHING

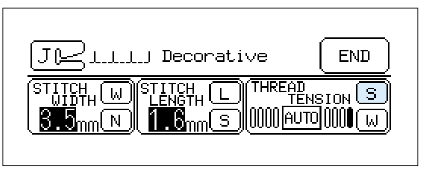


1. **Decorative**
2. **Satin stitch**

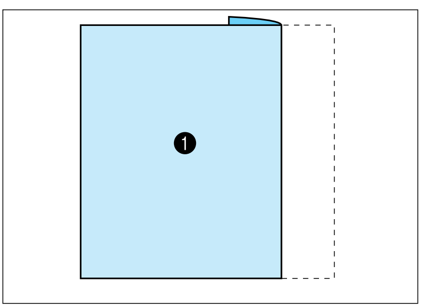


These stitches can be used to embellish the seams of crazy quilts or to decorate hems. For a more ornamental stitch, use contrasting thread colors or decorative embroidery thread.

Shell tuck stitching



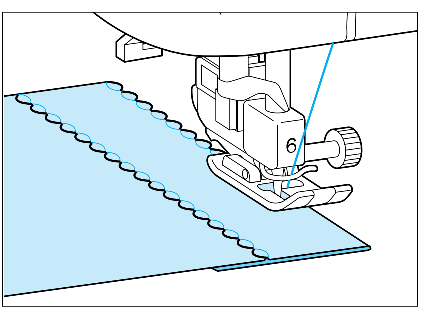
1. Attach presser foot **J**, press [stitch key] and select a strong thread tension.



2. Fold under the edge of the fabric.

   1. Right side of fabric

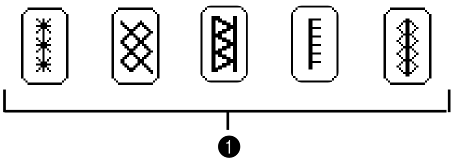
Note
Use a thin fabric.



3. Make sure that the needle drops slightly off the edge of the fabric, and then sew the shell tucks.
4. Unfold the fabric and iron the tucks down to one side.

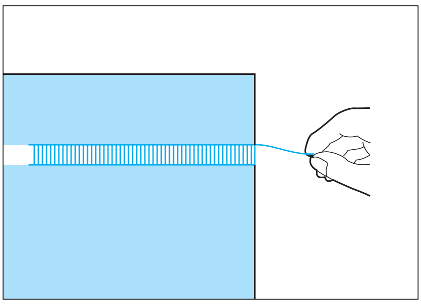
HEIRLOOM STITCHING

Use these stitches for sewing tablecloths, and for making decorative hems on clothing and decorative stitching on shirt fronts.
A more attractive finish can be obtained if a wing needle (130/705H) is used. When a wing needle is used and the stitch width has been set manually, before starting to sew, carefully turn the balance wheel toward you and check that the needle does not touch the presser foot.

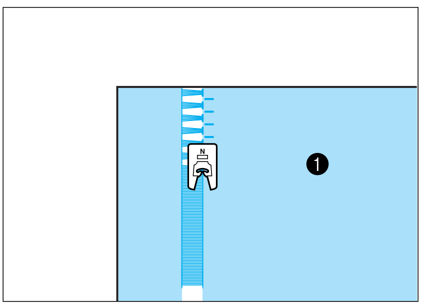


❶ **Heirloom**

Hemstitching with

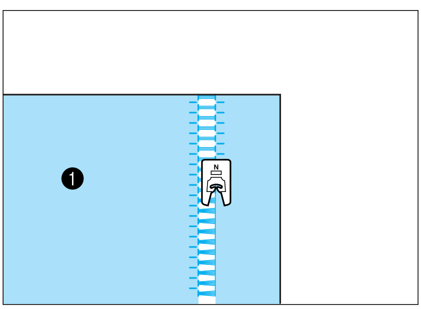


1. Pull out several threads and remove them from one section of a piece of fabric so that the fabric is frayed. Removing about 5 or 6 threads will leave a 1/8" (3.0 mm) frayed area.

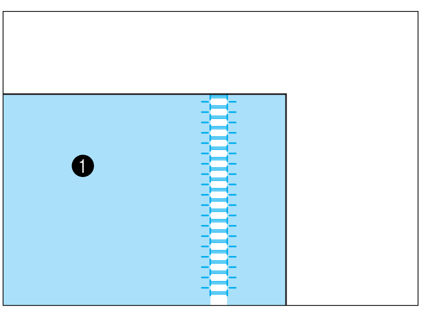


2. Attach presser foot **N**.

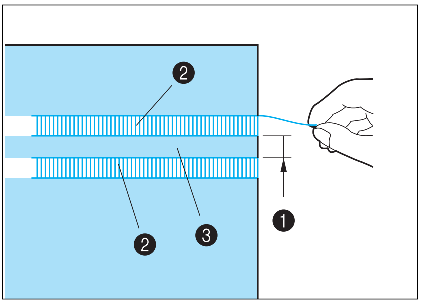
3. With the wrong side of the fabric facing up, sew along one edge of the frayed section.
   ❶ Wrong side of fabric



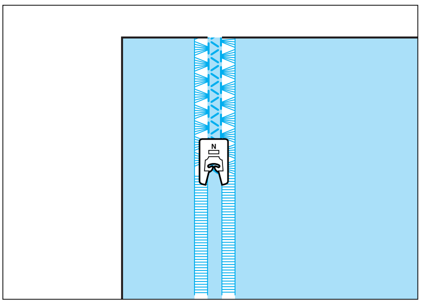
4. Turn the fabric around, keeping the reverse side of the fabric facing up, and sew along the other edge of the frayed section so that the stitches are parallel and appear as shown below.
   ❶ Wrong side of fabric



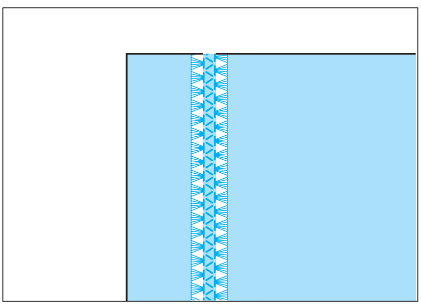
Hemstitching with



1. Pull out four threads, leave an unfrayed section of five threads, and then pull out four more threads. The width of the five threads is approximately 5/32" (4.0 mm) or less.
   ❶ Approx. 5/32" (4.0 mm) or less
   ❷ Sections of four threads pulled out
   ❸ Unfrayed section of five threads

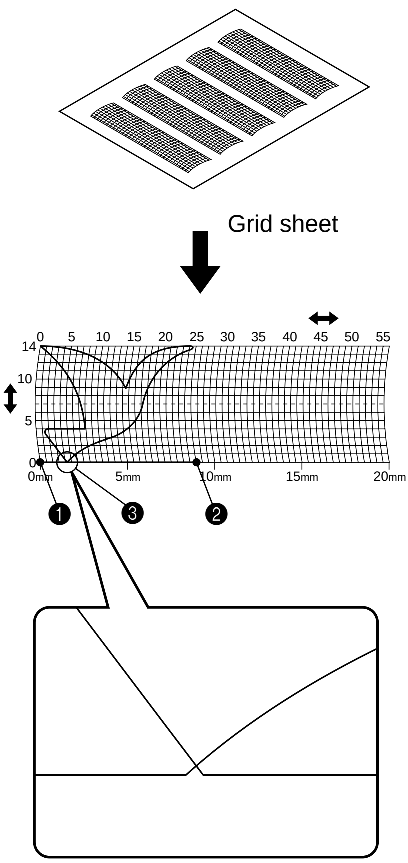


2. Sew the decorative stitch along the center of the unfrayed section so that the stitching appears as shown below.



Note
Use of the wing needle is optional.

DESIGNING THE STITCH



With the MY CUSTOM STITCHTM function, you can sew designs that you create yourself.

Note

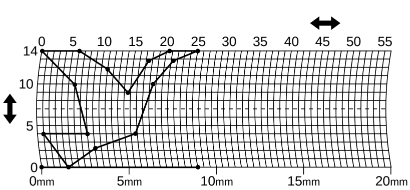
– Stitches that you create with MY CUSTOM STITCHTM can be a maximum of 9/32" (7 mm) wide and 1-1/3" (33 mm) long.
– Stitches can be designed more easily with MY CUSTOM STITCHTM if you draw the stitch on the enclosed grid sheet first.

1. Draw the stitch design on the grid sheet (part code SA500, X80948-001).

❶ Start point
❷ End point
❸ Intersection

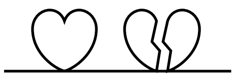
Note

– Simplify the design so that it can be sewn as a continuous line. For a more attractive stitch, close the design by intersecting lines.
– If the design will be repeated and linked, the start point and end point of the design should be at the same height.

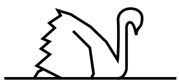


2. Mark the points in the design where the direction of the stitching changes.

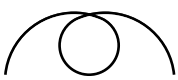
3. Determine the x and y coordinates of each of the marked points. This will determine the design of the stitching that will be sewn.



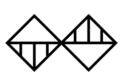
Stitch	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
↔	00	12	18	22	23	21	17	14	12	09	06	03	01	03	06
↕	00	00	03	06	10	13	14	13	11	13	14	13	10	06	03
Stitch	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
↔	12	41	43	40	41	38	35	32	30	32	35	41	45	47	44
↕	00	00	04	07	11	13	14	13	10	06	03	00	00	04	07
Stitch	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
↔	45	47	50	54	56	55	51	45	70						
↕	11	13	14	13	10	06	03	00	00						



Stitch	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
↔	00	30	32	32	32	33	35	35	37	35	32	30	30	29	26
↕	00	00	01	07	10	12	11	08	12	14	14	11	05	03	08
Stitch	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
↔	24	18	13	12	13	10	12	08	12	07	12	06	10	05	10
↕	10	13	14	14	12	11	10	09	08	06	06	03	02	00	02
Stitch	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
↔	16	19	23	22	17	22	23	19	42						
↕	01	00	00	06	10	06	00	00	00						

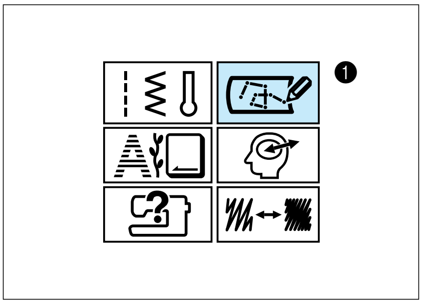


Stitch	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
↔	00	03	05	08	12	17	20	24	27	29	31	32	30	27	24
↕	00	05	08	11	13	14	14	13	12	11	09	06	03	01	00
Stitch	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
↔	21	18	16	15	15	16	18	21	25	28	33	37	41	43	44
↕	00	01	03	05	08	10	12	13	14	14	13	11	08	05	00
Stitch	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
↔															
↕															



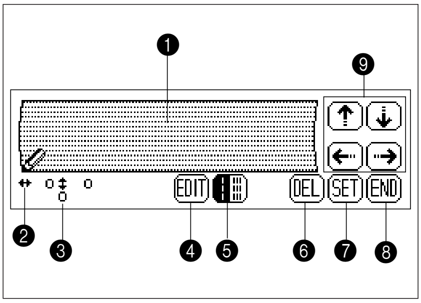
Stitch	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
↔	00	05	04	05	08	07	08	11	11	11	16	11	07	04	00
↕	07	07	03	07	07	00	07	07	03	07	07	03	00	03	07
Stitch	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
↔	04	07	11	16	21	20	21	24	23	24	27	27	27	32	27
↕	11	14	11	07	07	11	07	07	14	07	07	11	07	07	11
Stitch	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
↔	23	20	16	20	23	27	32								
↕	14	11	07	03	00	03	07								

ENTERING STITCH DATA



Note
Make sure that the embroidery unit is not attached.

1. Press the **MY CUSTOM STITCH** key.
   ❶ **MY CUSTOM STITCH** key



❶ This area displays the stitch that is being created.

❷ The number beside indicates the y coordinate of the tip of , and the number beside indicates the x coordinate of the tip of .

❸ This number indicates the point indicated by within the stitch design.

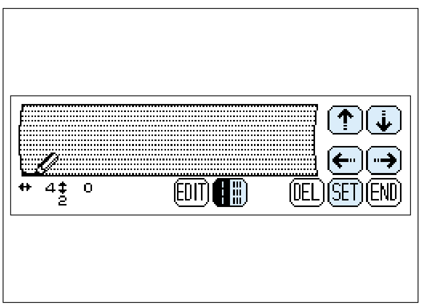
❹ Press this key to display a screen that allows you to change a set point. (Refer to page 81 for more details.)

❺ Press this key to select whether one stitch or three stitches are sewn between two points.

❻ Press this key to erase the last point that has been set.

❼ Press this key to add the point indicated by .

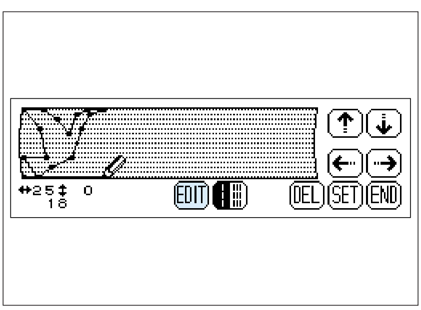
❽ Press this key to finish creating the stitch and display the screen that allows you to see the entered stitch. (Refer to page 80.)



3. Select whether one stitch or three stitches will be sewn between the first two points.To sew one stitch, press so that it appears as ; to sew three stitches, touch the key so that it appears as .

4. Use the arrow keys to move to the coordinates of the first point that was made on the grid sheet (from step 2 on page 77).

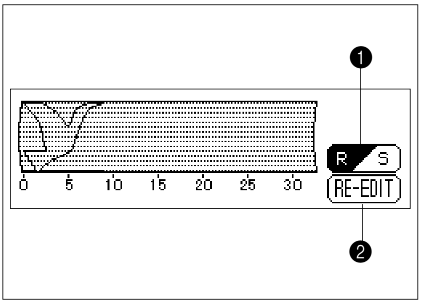
5. Press the **SET** key to add the point indicated by .



6. Repeat steps 3 through 5 for each point that you have drawn on the grid sheet until the stitch design is drawn on the screen as a continuous line.

Note
If you make a mistake while setting points, press the **DEL** key to erase the last point set.

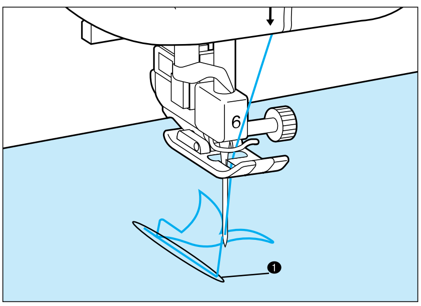
7. Once you have finished entering the stitch data, press the **END** key.



A screen that allows you to see the entered stitch design appears.

❶ Press this key so that it appears as R S to sew the stitch design repeatedly. Press this key so that it appears as R S to sew the stitch design only one single time.

❷ Press this key to return to the screen that allows you make changes to the entered data.



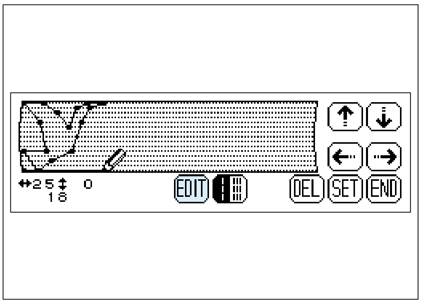
If the stitch design will be repeated and linked, make sure that linking stitches are added so that the stitch designs will not overlap.

❶ Linking stitches

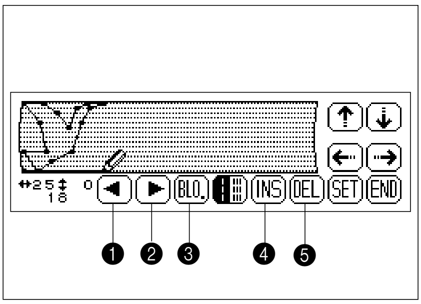
Note

If you have entered points that are too close together, the fabric may not feed properly. Edit the stitch data to leave a larger space between points.

EDITING STITCH DATA



1. Press the **EDIT** key.



A screen that allows you to edit the entered stitch design appears.

❶ Press this key to move  backward one point.

❷ Press this key to move  forward one point.

❸ Press this key to move part of or all of the design. (Refer to page 82 for more details.)

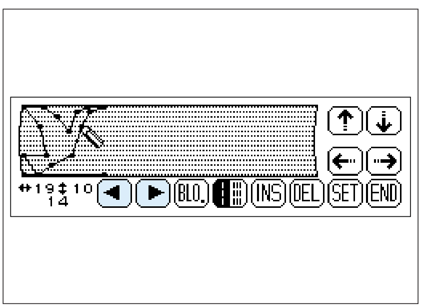
❹ Press this key to insert a point. (Refer to page 82 for more details.)

❺ Press this key to delete the selected point.

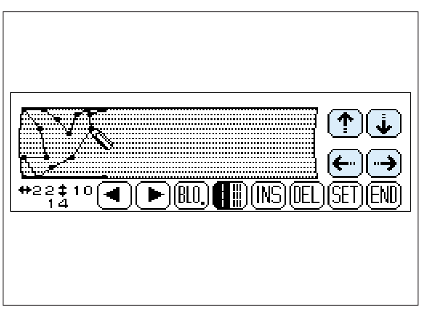
2. Make the desired changes to the stitch design.

3. Press the **END** key.

Moving a point

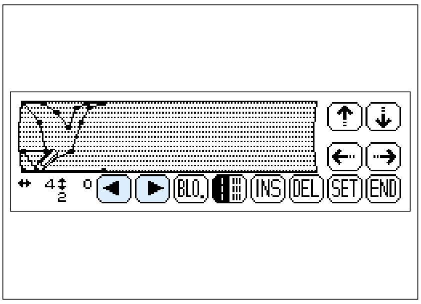


1. Press  or  to move  to the point that you wish to move.

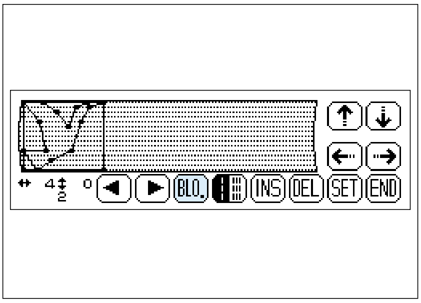


2. Use the four arrow keys to move the point to the desired position.

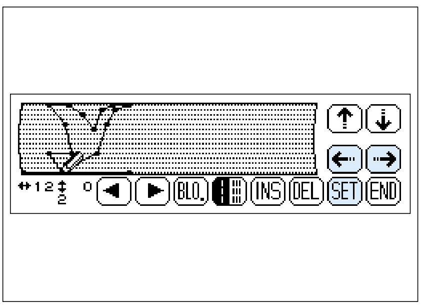
Moving part or all of the design



1. Press or to move to the first point of the section that you wish to move.

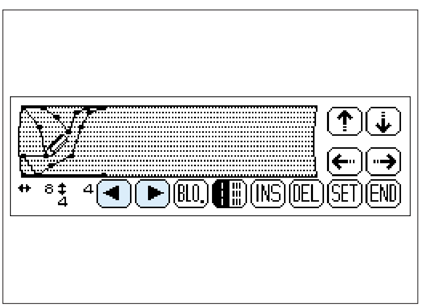


2. Press . The selected point and all points that come after it are surrounded by a box. (This indicates the area that is to be moved.)

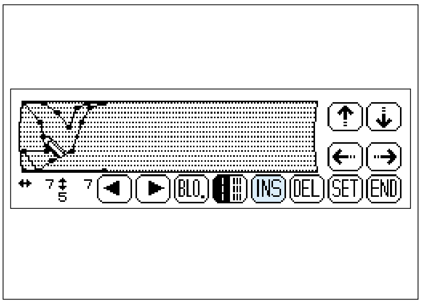


3. Press or to move the selected section to the desired location, and then press the **SET** key.

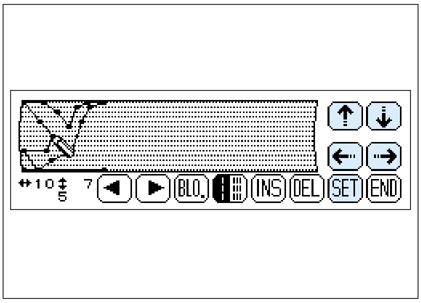
Inserting new points



1. Press or to move to point at the beginning of the line that you wish to add a new point to.

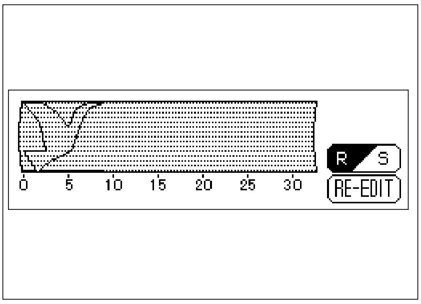


2. Press [INS]. A new point is inserted and [pencil icon] moves to it.



3. Use the four arrow keys to move the point to the desired position.

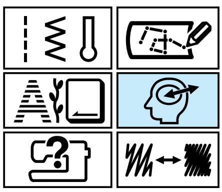
STORING A STITCH DESIGN THAT YOU HAVE CREATED



Up to five stitch designs can be stored.

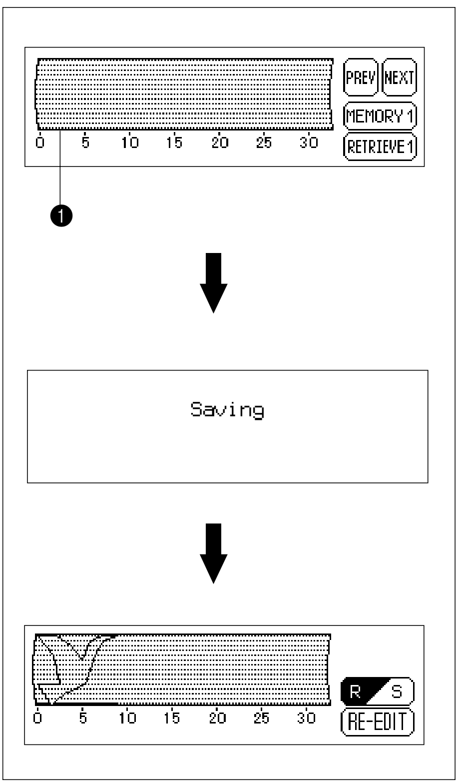
Example: **To save the entered stitch design in memory address 1**

1. Enter the stitch data.



❶

2. Press the **MEMORY** key.
   ❶ **MEMORY** key

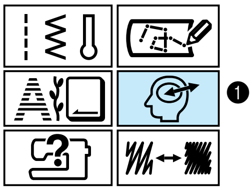


3. When an empty memory appears on screen, press that **MEMORY** # key to save your design. If a pattern has already been saved in memory address 1, it is displayed on the screen. Pressing the **MEMORY** key of a full memory will cause its contents to be placed by what you are saving.

It will take approximately 10 seconds for the pattern to be stored. Once the pattern has been stored, the display will return to the previous screen.

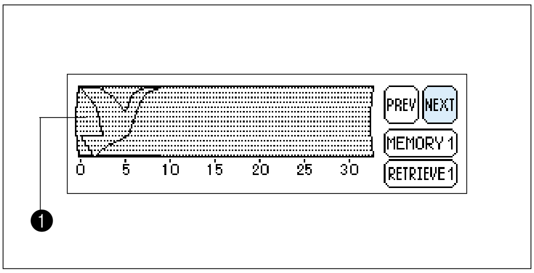
CAUTION
Do not turn off the power while a pattern is being saved (while the message "Saving" is displayed). Otherwise, the data being stored may be deleted.

RETRIEVING A STITCH DESIGN THAT HAS BEEN SAVED

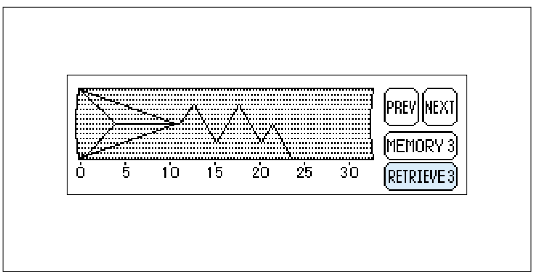


Example: To recall a stitch design that has already been saved in memory address 3

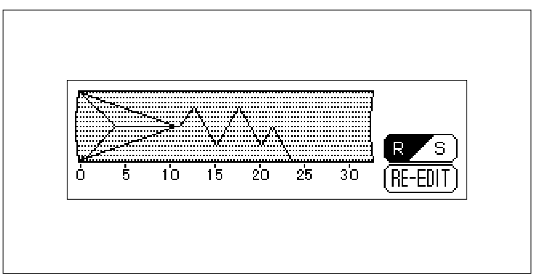
1. Press the **MEMORY** key.
   ❶ **MEMORY** key



2. Press the **NEXT** key twice.
   ❶ If the desired pattern is not displayed on the screen, press the **NEXT** and **PREV** keys until the desired pattern is shown.



3. Press the **RETRIEVE 3** key.

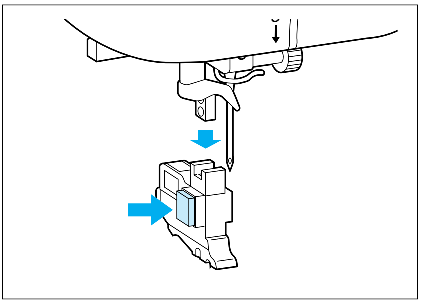


The retrieved pattern appears on the screen and can be edited or sewn.

SETUP

Installing embroidery foot Q

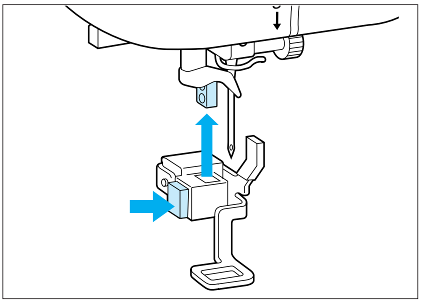
CAUTION
Be sure to turn off the power before attaching embroidery foot Q. If the power is left on and the start/stop button is accidentally pressed, the machine will start operating, which could result in serious injury.



1. Press the needle position button to raise the needle, and then turn off the sewing machine.

2. Raise the presser foot lever.

3. With the enclosed screwdriver or disc-shaped screwdriver, loosen the screw on the presser foot holder, and then pull the holder downward to remove it.
   ❶ Presser foot holder



4. Slide the bracket on embroidery foot **Q** up onto the presser foot bar, and then fasten it by firmly tightening the screw with the enclosed screwdriver or disc-shaped screwdriver.
   ❶ Embroidery foot **Q**

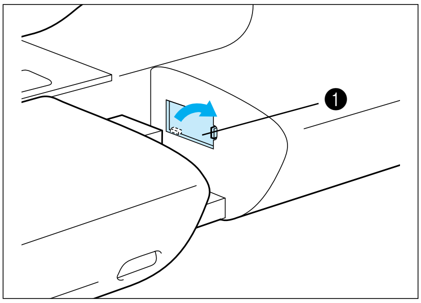
CAUTION
Be careful not to touch the tip of the needle, otherwise injuries may occur.

Note
– Make sure that embroidery foot **Q** is tightly attached to the presser foot bar.
– It is recommended that a 90/14-size needle be used when embroidering thicker fabrics such as denim or when using stabilizing products such as puffy foam. A 75/11-size needle might bend or break, which could result in injuries.

Installing the embroidery unit

CAUTION

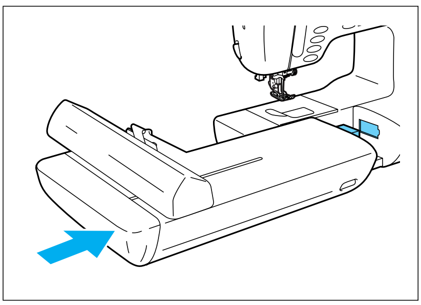
- **Always turn off the main power switch before connecting or removing the embroidery unit.**
- **Do not touch the connector on the embroidery unit.**
- **The foot controller cannot be used when the embroidery unit is operational.**
- **When the embroidery unit is not being used, always store it in its box and packing materials.**
- **Do not carry the machine with the embroidery unit connected.**
- **Always set your machine on a flat, level surface.**



1. Turn off the sewing machine.
2. Open the connecting slot by sliding the cover in the direction indicated by the arrow.
   ❶ Connecting slot cover

Note

When the embroidery unit is not being used, keep the connecting slot cover closed.

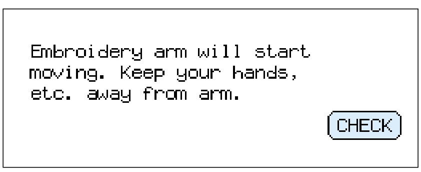


3. Insert the connector on the embroidery unit firmly into the connecting slot.

Note

With the sewing machine on a flat, level surface, slide the embroidery unit towards the machine.

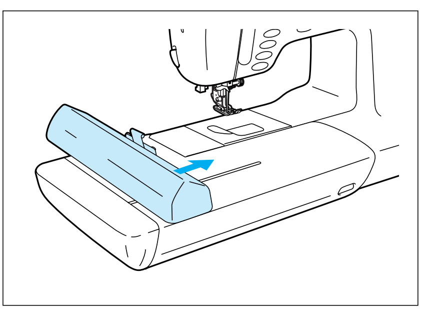
Initializing the embroidery unit



1. Turn on the sewing machine. The message shown at the left appears on the screen.

Note

If the buttonhole lever, the needle or the presser foot lever are lowered or if the bobbin winding shaft is moved to the right, an error message appears indicating the current error condition. After the error condition is corrected, the message shown at the left appears.

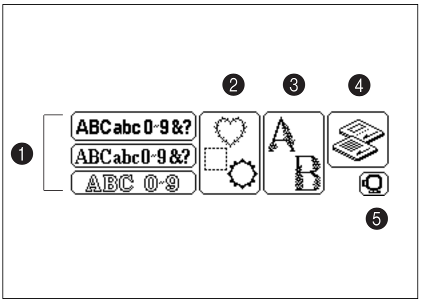


2. Press CHECK. The embroidery arm moves to its initial position.

CAUTION

- **Do not place your hands near the embroidery arm, otherwise injuries may occur.**
- **Please note that the embroidery arm normally makes noises while it moves to its initial position.**
- **If the embroidery unit could not be initialized normally, a buzzer will sound. If this occurs, make sure that a embroidery frame is not attached and try initializing the embroidery unit again.**

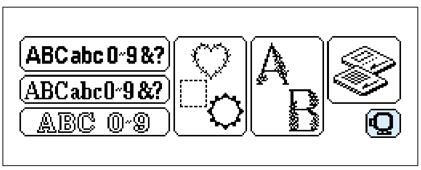
Embroidering screen



Press a key on the screen with your finger to select the pattern or to start the indicated function or operation.

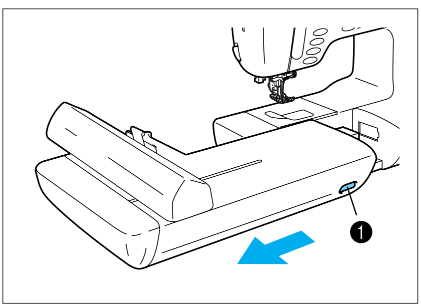
❶ Press the key showing the character font that you would like to use.
❷ Press this key to embroider a frame.
❸ Press this key to embroider a one-point pattern.
❹ Press this key to select a pattern from the installed embroidery card.
❺ Press this key to position the embroidery arm so that the embroidery unit can be removed.

Removing the embroidery unit



1. Make sure that the embroidery frame has been removed, press the **EMBROIDERY** key, and then press [key icon]. The carriage will move to the position where it can be removed.

CAUTION
If the above step is not performed, the embroidery unit cannot be placed in its box and packing materials for storage.



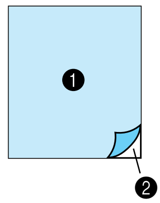
2. Turn off the sewing machine, hold the left side of the embroidery unit, and while pressing the release button, gently slide the embroidery unit away from the machine.
   ❶ Release button

CAUTION
Make sure that the power is turned off, otherwise damage may result.

Creating beautiful embroidery

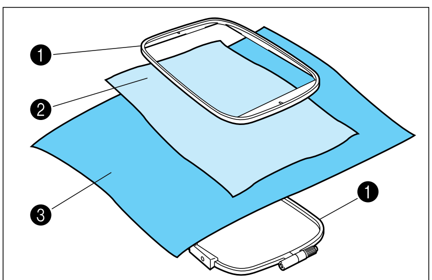
Refer to the table below and the FABRIC/THREAD/NEEDLE COMBINATIONS table on page 19 when selecting the appropriate fabric, thread and needle for creating attractive embroidery. Pattern slippage may occur when using fabric of different thicknesses or when using different types of stabilizers. Be sure to sew a test embroidery beforehand.

FABRIC	Before embroidering, attach a sheet of non-woven stabilizer material to the fabric. **Note** It is recommended that you use special embroidering stabilizer material which can be torn from around the design when sewing is finished.
THREAD	Upper thread: Embroidery thread #50 Bobbin thread: Embroidery thread #60 **Note** Adjust the thread tension if the thread quality is not compatible.
NEEDLE	75/11 (Embroidery)



❶ Fabric
❷ Stabilizer material

Attaching stabilizer material



Using stabilizer material is an important part of creating attractive embroidery. It is particularly important when embroidering stretch fabrics, thin fabrics, and fabrics with coarse weaves. If necessary, two layers of stabilizer material may be attached.
Before embroidering, iron the stabilizer material onto the back of the fabric. Use stabilizer material with an area that is larger than the frame, and make sure that all sides of the stabilizer material are securely clamped in the frame. When embroidering fabrics that cannot be ironed, or in places where ironing is difficult, place the stabilizer material underneath the frame before embroidering.
For slick or slippery fabric, use one or two layers of stabilizer material clamped in the frame on the wrong side of the fabric. In addition, embroider over a water-soluble stabilizer sheet placed on the right side of the fabric.

❶ Embroidery frame
❷ Fabric
❸ Non-woven stabilizer material

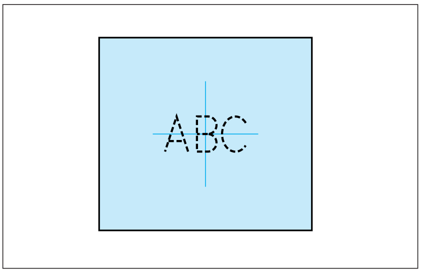
Inserting the fabric in the embroidery frame

Embroidery frames are available in four sizes: extra-large, large, medium, and small.

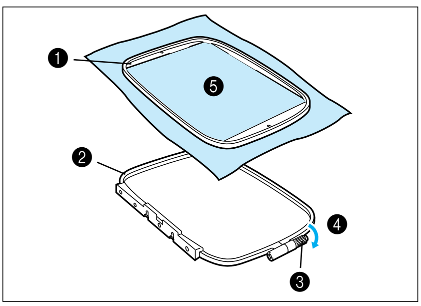
Embroidery area of extra-large frame: 11-53/64" (30 cm) (H) × 5-3/64" (13 cm) (W)
Embroidery area of large frame: 7" (18 cm) (H) × 5-3/64” (13 cm) (W)
Embroidery area of medium frame: 4" (10 cm) (H) × 4" (10 cm) (W)
Embroidery area of small frame: 25/324" (2 cm) (H) × 2-23/64" (6 cm) (W) (for embroidering initials)

CAUTION

- **Depending on the size of the pattern and the position of the pattern to be embroidered, it may not be possible to use the medium and small frames. When using these frames, be sure to check the pattern layout on the screen (refer to page 98) before starting to embroider. If the wrong frame is used by mistake, the presser foot may hit the frame, possibly causing injuries.**
- **Do not use any embroidery frames other than those shown here, otherwise injuries could occur.**

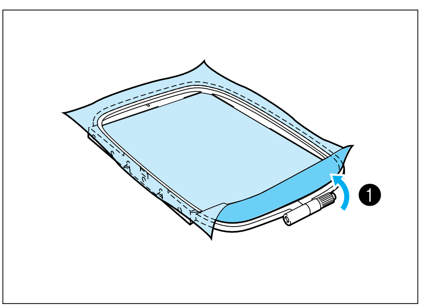


1. Use a chalk pen to mark the center of the embroidering position on the fabric.



2. Loosen the screw on the outer frame and separate the inner and outer frames. Place the fabric on top of the outer frame with the right side of the fabric facing up, and then place the inner frame inside the outer frame to clamp the fabric.
   1 Inner frame
   2 Outer frame
   3 Screw
   4 Loosen
   5 Right side of fabric

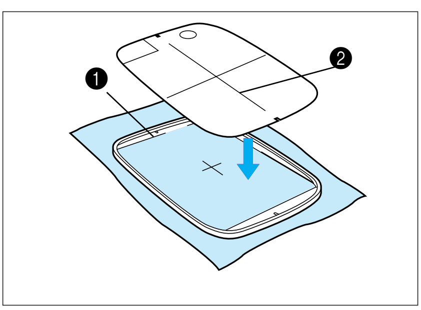
Note
Be sure to align the arrow marks on the two frames (▲ on the inner frame with ▼ on the outer frame).



3. Tighten the screw just enough to secure the fabric, and then gently remove the fabric from the frame without loosening the screw.
   1 Tighten

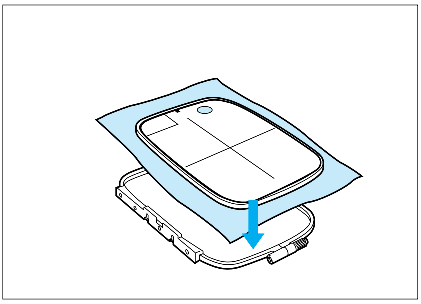
Note
This stretches the fabric to help reduce pattern distortions while embroidering.

4. Remove the inner frame.

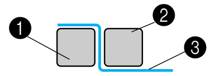


5. Place the inner frame on top of the fabric, place the embroidery sheet inside the inner frame, and then align the center of the lines on the sheet with the mark on the fabric.
   1 Inner frame
   2 Line

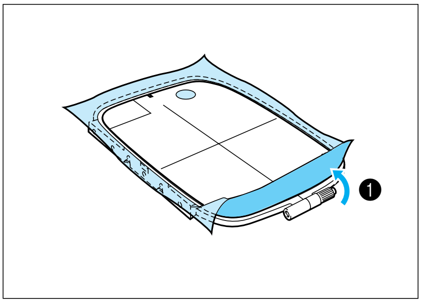
Note
For best results, lay the outer frame on a flat surface and lay the fabric on top of it before aligning the center of the embroidery sheet with the mark on the fabric.



6. Insert the fabric and inner frame back into the outer frame without allowing the embroidery sheet or the fabric to move out of place.
   ❶ Outer frame
   ❷ Inner frame
   ❸ Right side of fabric

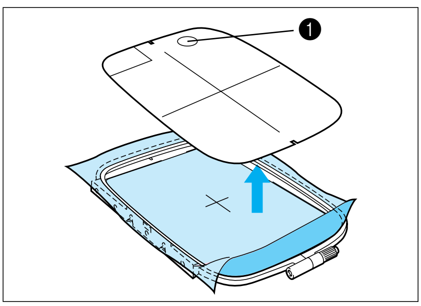


Note
Press down firmly until the tops of the outer frame and inner frame are aligned.



7. Tighten the screw by hand.
   ❶ Tighten

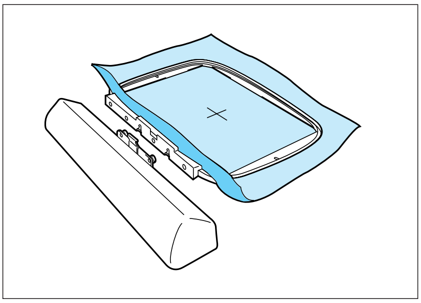
Note
To avoid stripping the screw, do not use a screwdriver to tighten it.



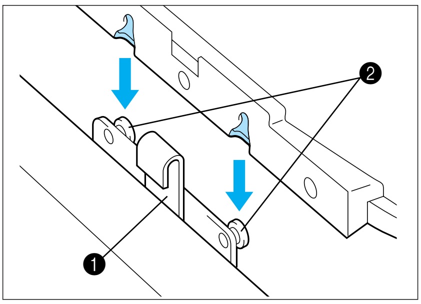
8. Check that the center of the pattern has remained in the correct position, and then remove the embroidery sheet before starting to embroider.
   ❶ Fingerhole for removing embroidery sheet

Attaching the embroidery frame to the embroidery arm

CAUTION
Be sure to wait until the embroidery unit has finished initializing before trying to attach the embroidery frame. (Refer to page 87.)



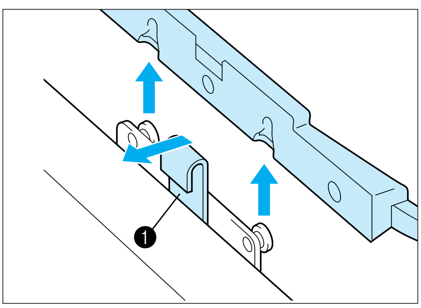
1. Raise the presser foot lever to its highest position, and then pass the embroidery frame under the presser foot, making sure that the mounting bracket of the frame is on the left side and the right side of the fabric is facing up.



2. Align the slots in the mounting bracket of the frame with the two knobs on the frame holder of the embroidery arm, and then press the frame onto the frame holder so that it clicks into place.
   ❶ Frame holder on embroidery arm
   ❷ Knobs

Note
Be sure that the mounting bracket on the embroidery frame is attached to both knobs. If it is attached to only one knob, the pattern may not be embroidered correctly.

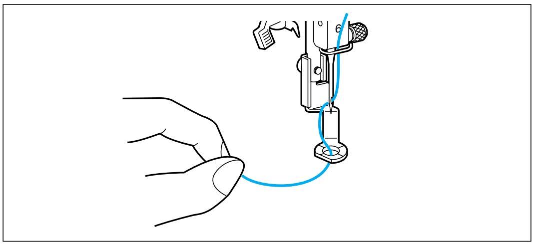
Removing the embroidery frame from the embroidery arm



While pushing the release lever on the frame holder to the left, lift the embroidery frame up to remove it.
❶ Release lever

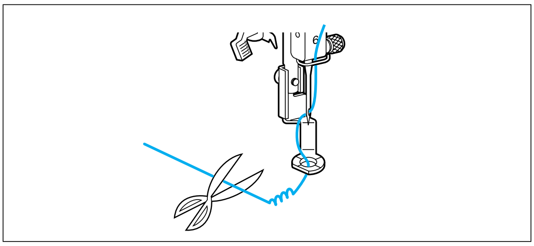
EMBROIDERING

Simple embroidering



1. After threading the bobbin thread, the upper thread and the needle, pass the thread down through the hole in embroidery foot **Q**, and then pull about 2" (5 cm) of the upper thread out toward the rear of the machine.

2. Design the embroidery pattern.



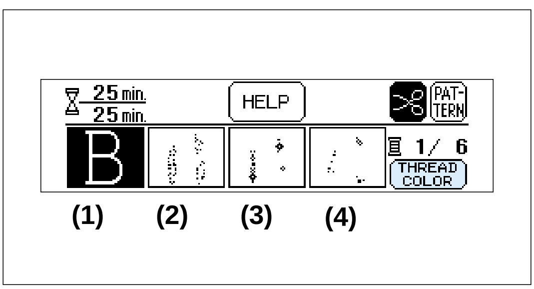
3. Lower the presser foot and press the start/stop button to start the machine. After sewing 5 to 6 stitches, stop the machine and trim off any excess thread at the beginning of the embroidery.

4. Press the start/stop button again to continue embroidering. The machine stops embroidering when it has completed all of the stitching with the thread color that is installed.

Note
The sewing speed is automatically controlled by the machine according to the pattern selected.

Embroidering multi-color patterns

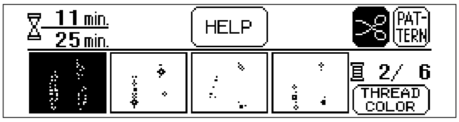
When the selected pattern can be embroidered using different colors of thread, the pattern appears on the screen separated into each color. The order of embroidering is shown from left to right.



Example: To embroider the floral pattern of the letter "B"

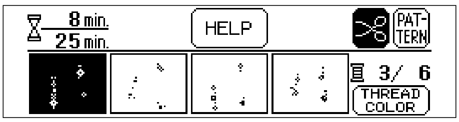
1. Thread the first color. (Refer to the procedure explained above.)
   When the start/stop button is pressed, the first part of the pattern (1) is sewn, and then the machine automatically sews the reinforcement stitches and stops.

Note
– Be sure to raise the presser foot before changing the thread.
– When embroidering for this color is finished, the parts of the pattern automatically move one position to the left.



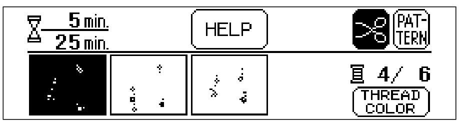
(2) (3) (4) (5)

2. Replace the upper thread with the next color and press the start/stop button. The second part of the pattern (2) is embroidered, and then the machine automatically sews the reinforcement stitches and stops.



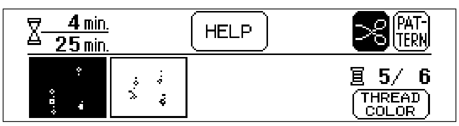
(3) (4) (5) (6)

3. Replace the upper thread with the next color and press the start/stop button. The third part of the pattern (3) is embroidered, and then the machine automatically sews the reinforcement stitches and stops.

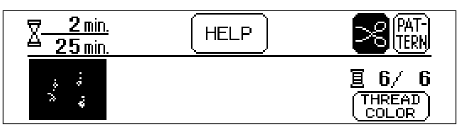


(4) (5) (6)

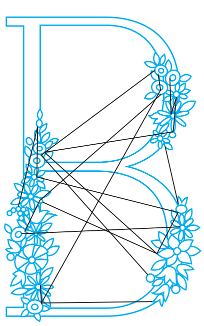
4. Repeat step 3 to embroider the fourth (4), fifth (5) and sixth (6) parts of the pattern.



(5) (6)



(6)

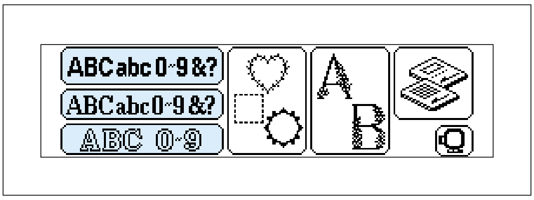


5. Trim off any excess thread.

EMBROIDERY PATTERNS

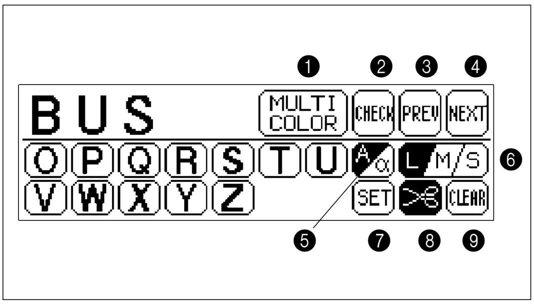
Creating text patterns

Text characters are available in three different fonts. In addition to the numbers and the letters of the alphabet, two of the fonts can be used to create words with accents and special punctuation.



1. Press the key of the desired font.

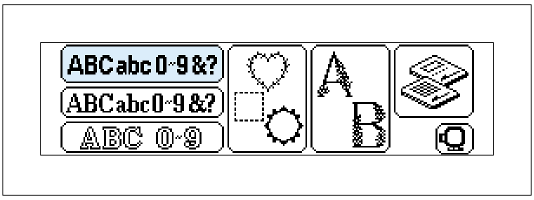
Note
If the screen shown at the left is not displayed, press the **EMBROIDERY** key.



2. Press the letter keys to create your text. (Refer to page 87.)

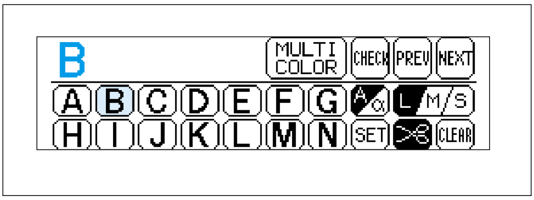
Note
Press the **PREV** and **NEXT** keys to display more characters.

❶ Press this key to sew reinforcement stitches and stop the machine after each character is embroidered so that the thread can be changed. (Refer to page 99.)
❷ When a lot of text has been typed in, some of the text cannot be viewed on the screen. Press this key to scroll the entered text across the screen so that it can be checked. (Refer to page 98.)
❸ Press this key to return to the previous screen containing more characters.
❹ Press this key to display the next screen containing more characters.
❺ Press this key to switch between uppercase and lowercase. (Refer to page 97.)
❻ Press this key to change the character size to one of three sizes. (Refer to page 97.)
❼ Press this key if you would like to change the embroidering position within the frame (page 105), change the overall size of the pattern (page 108), or use the Help function, which allows you to select a specific point during the embroidering of the pattern (page 112).
Note
This key changes to the **HELP** key after embroidering starts.
❽ Press this key to turn on and off automatic thread cutting. (Refer to page 37.)
❾ Press this key to erase the last character of the text. (Refer to page 99.)

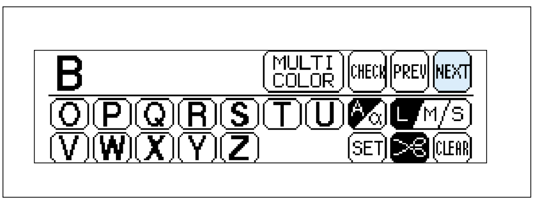


Example: To select characters to create the word “BUS”

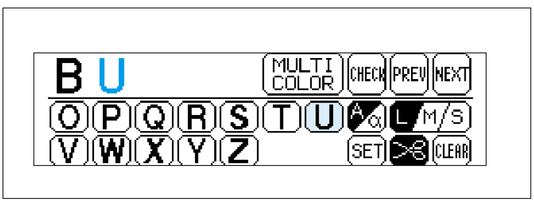
1. Press ABCabc 0~9 &?.



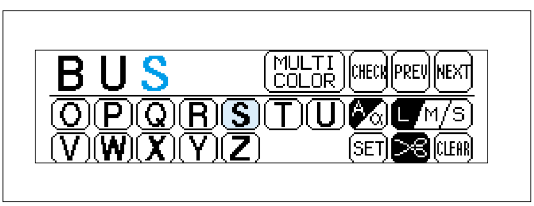
2. Press the **B** key.



3. Press the **NEXT** key.

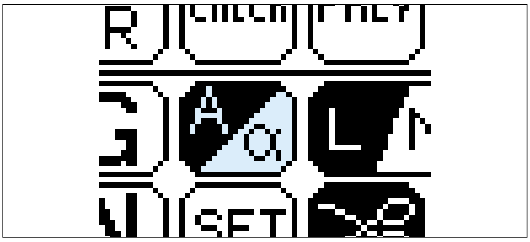


4. Press the **U** key.



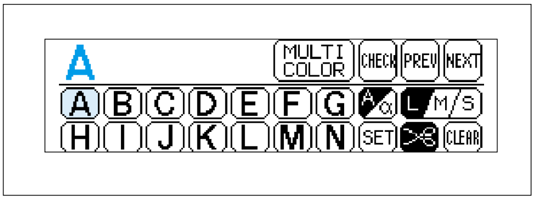
5. Press the **S** key.

Typing uppercase & lowercase characters

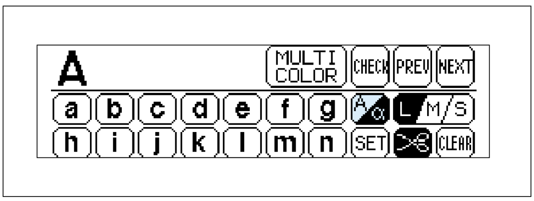


Two of the fonts can be typed in with both uppercase and lowercase characters. Press [key] to switch between uppercase and lowercase. When this key appears as [key], uppercase letters can be typed in. When the key appears as [key], lowercase letters can be typed in.

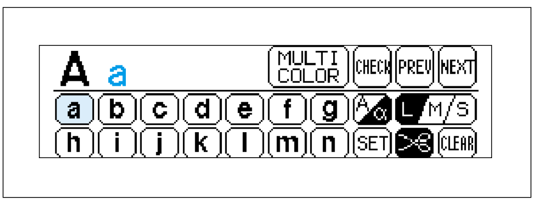
Example: To type in "Aa"



1. Press the **A** key.

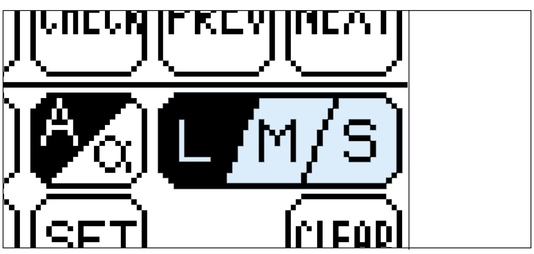


2. Press [key] to switch to lowercase.



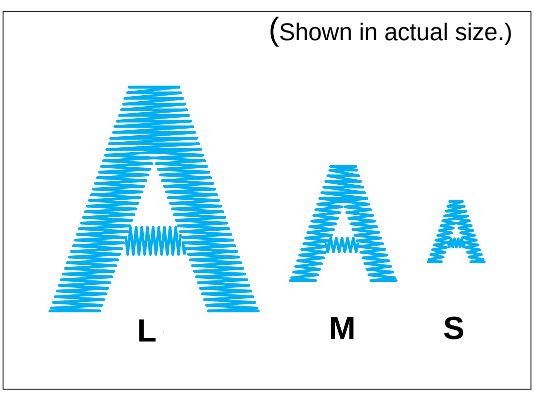
3. Press the **a** key.

Changing the character size



The size of the characters can be changed by pressing [key]. Each time this key is pressed, it selects a different character size.

Changing the character size changes the size of all characters in the text. When this key appears as [key], all characters are changed to the large size. When the key appears as [key], all characters are changed to the medium size. When the key appears as [key], all characters are changed to the small size.



L (large)
M (medium)
S (small)

Checking the text



After a lot of text has been typed in, it may not be possible to view some of it on the screen. Press the **CHECK** key for the entire text to scroll across the screen.

Example: When "abcdefghijk" have been typed in small-sized lowercase characters



After "k" is typed in, the display appears as shown in the illustration at the left.

Note
When the size of the text starts to exceed the size of the embroidery area of the frame, no more characters can be typed in. To type in more text, select a smaller character size. (Refer to page 88.)



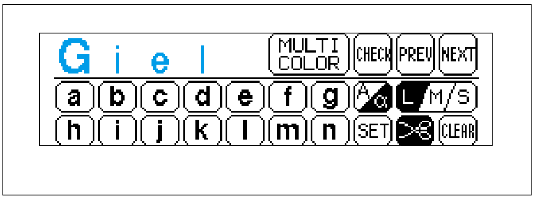
Press the **CHECK** key to scroll all of the text across the screen.

Note
If all the text can already be displayed on the screen at one time, the text does not scroll.

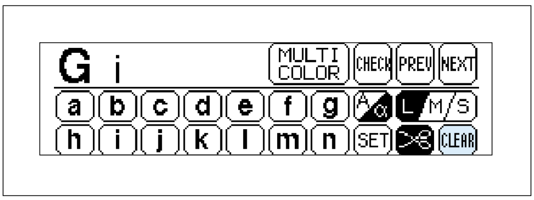
Editing text CLEAR



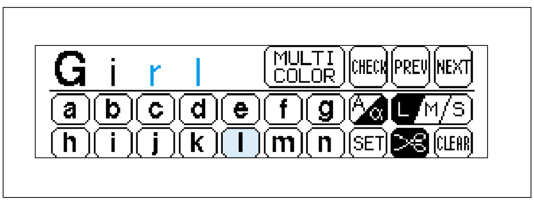
The last character selected is deleted each time the **CLEAR** key is pressed.



Example: When “Giel” has been entered instead of “Girl”



1. Press the **CLEAR** key twice to delete “l” then “e”.



2. Press the **r** key, and then press the **l** key.

Changing the color of each character in the text MULTI COLOR



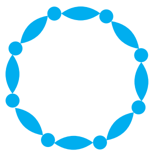
Before starting to embroider, press the **MULTI COLOR** key so that it appears as MULTI COLOR to turn on multi-color embroidering. After a character is embroidered, the machine automatically sews reinforcement stitches, and then stops so that the thread can be changed.

Note

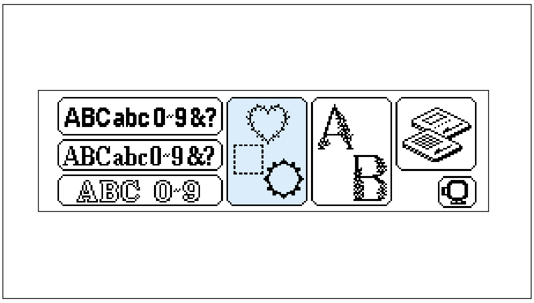
Pressing MULTI COLOR so that it changes back to MULTI COLOR turns off multi-color embroidering.

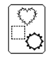
CONTENTS
SETTING UP
SEWING
UTILITY STITCHES
MY CUSTOM STITCH™ (CREATE YOUR OWN STITCH DESIGNS)
EMBROIDERING
MAINTENANCE
ERROR MESSAGES
SEWING CHART
PATTERNS (PROGRAMMED IN MACHINE)

Creating frame patterns

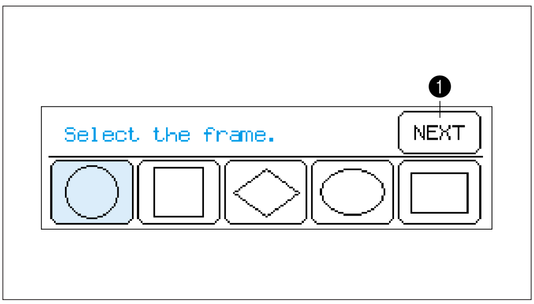


Frame patterns are created by combining the desired frame shape with the selected stitch.

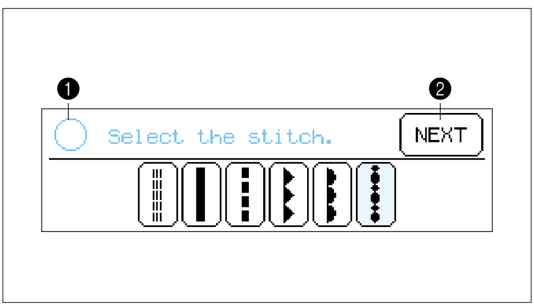


1. Press .

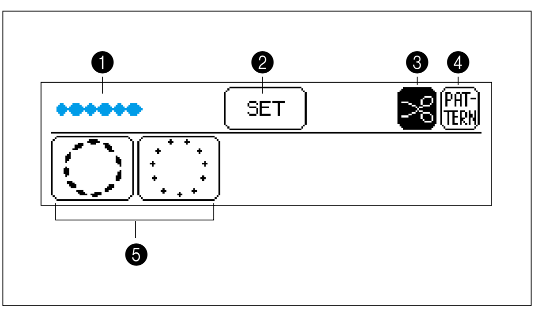
Note
If the screen shown at the left is not displayed, press the **FONT/DECORATIVE** key.



2. Press the key for the desired frame shape.
   1. Press this key to display more frame shapes. (A total of 10 different frame shapes are available.)

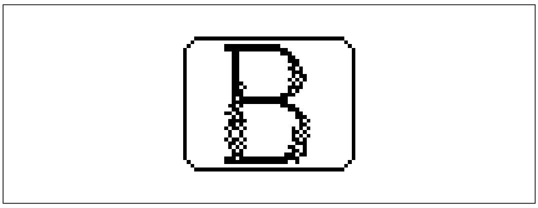


3. Select the desired stitch.
   1. This shows the currently selected frame shape.
   2. Press this key to display more stitches. (A total of 12 different stitches are available.)



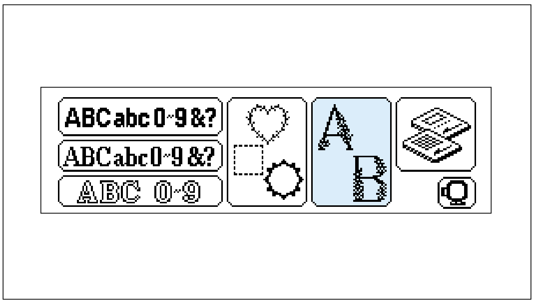
The selected frame pattern is shown on the screen.
1. This shows the currently selected stitch.
2. Press this key if you would like to change the embroidering position within the frame (page 105), change the overall size of the pattern (page 108), or use the Help function, which allows you to search for a specific point in the embroidering of the pattern (page 112).
   Note
   This key changes to the **HELP** key after embroidering starts.
3. Press this key to turn on and off automatic thread cutting. (Refer to page 37.)
4. Press this key to return to the screen where the pattern was selected (step 2 above).
5. If the frame pattern can be embroidered using different colors of thread, the embroidering order of each part of the pattern is shown from left to right.

Selecting one-point patterns



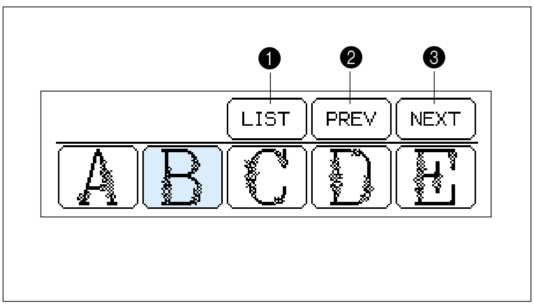
A variety of patterns have already been created and are available for embroidering at any time.

Note
The two patterns appearing in wide buttons (see the list of one-point patterns on pages 136 and 137) are too wide to fit horizontally within an embroidery frame. Therefore, although the patterns appear horizontally on the buttons, they will be sewn vertically. Be sure to position the fabric in the embroidery frame so that the pattern will be sewn correctly.

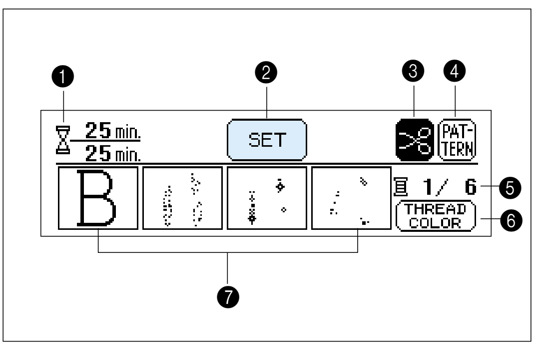


1. Press [A B].

Note
If the screen shown at the left is not displayed, press the **EMBROIDERY** key.



2. Press the key for the desired one-point pattern.
   - ❶ Press this key to scroll through all available patterns. (A total of 18 different patterns available.)
   - ❷ Press this key to display the previous screen containing more patterns.
   - ❸ Press this key to display the next screen containing more patterns.



Various details about the selected one-point pattern are displayed.

❶ This shows the amount of time remaining to embroider the pattern over the total amount of time required. (It does not include the time needed to change threads.) [hourglass] appears here while the time is being calculated.

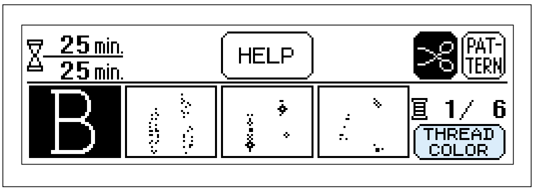
❷ Press this key if you would like to change the embroidering position within the frame (page 105), change the overall size of the pattern (page 108), or use the Help function, which allows you to search for a specific point in the embroidering of the pattern (page 112).

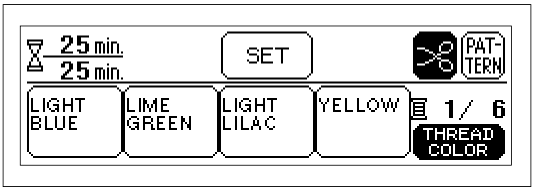
Note
This key changes to the **HELP** key after embroidering starts.

❸ Press this key to turn on and off automatic thread cutting. (Refer to page 37.)
❹ Press this key to return to the screen where the pattern was selected (step 2 above).
❺ This shows the number of the thread color currently being sewn over the total number of colors that can be used.
❻ Press this key to display the thread color names instead of each part of the pattern. (The thread colors that are displayed are for reference only.) If the **THREAD COLOR** key is not displayed, it is not possible to display the color names. (Refer to page 102.)
❼ If the pattern can be embroidered using different colors of thread, the embroidering order of each part of the pattern is shown from left to right.

Displaying the thread color names

THREAD COLOR



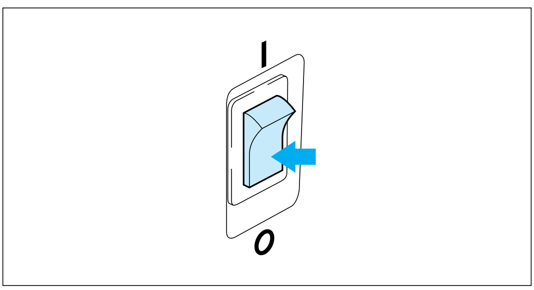


After selecting a pattern, press the **THREAD COLOR** key so that it appears as THREAD COLOR to display the thread color names instead of each part of the pattern.

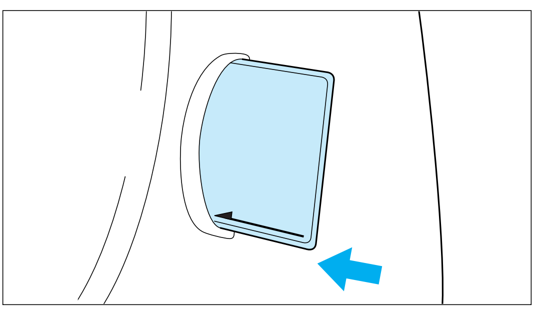
Note

– Pressing THREAD COLOR so that it changes back to THREAD COLOR re-displays the embroidering order of each part of the pattern.
– If the **THREAD COLOR** key is not displayed, it is not possible to display the color names.

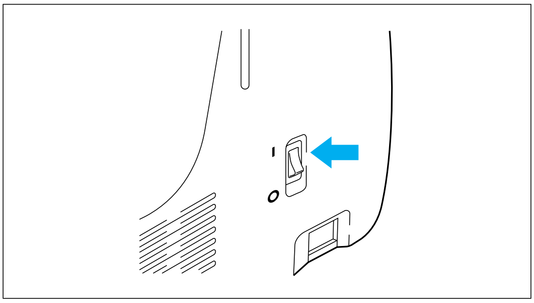
Selecting patterns from a memory card



1. Set the main power switch to “**O**” to turn off the sewing machine.



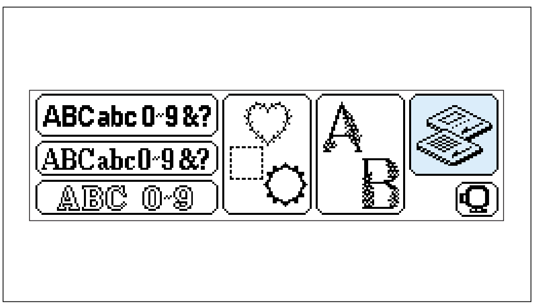
2. Hold the memory card so that the arrow on the card faces toward you, and then insert the card as far as possible into the slot on the right side of the sewing machine.



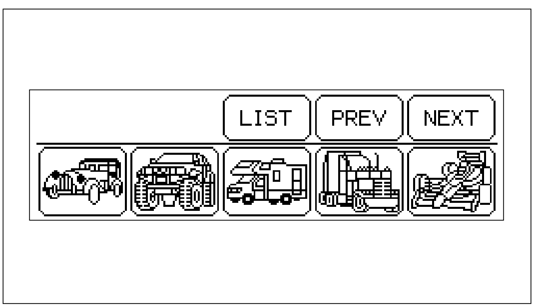
3. Set the main power switch to "**I**" to turn on the sewing machine.

CAUTION

– **Do not insert the card in any direction other than that described above, and do not force it into the slot, otherwise the card or the machine may be damaged.**
– **When the card is inserted, it should appear as shown in the illustration at the left. Trying to push the card in any further will damage the connector.**
– **Always turn off the main power switch before inserting or removing the embroidery card (memory card).**
– **Always keep the memory card in its case when it is not being used.**



4. Press [icon].



5. The pattern selection screen for the inserted memory card is displayed. [The illustration at the left shows the Transportation card No.2 (part code SA299, X58321-001) (optional).]

Note

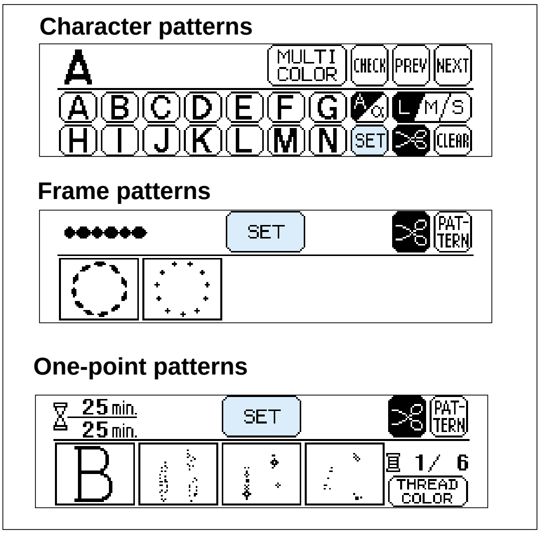
If the screen shown at the left is not displayed, press the **EMBROIDERY** key before pressing [icon].

6. Select the desired pattern in the same way as you select a one-point pattern. (Refer to page 101 for more details.)

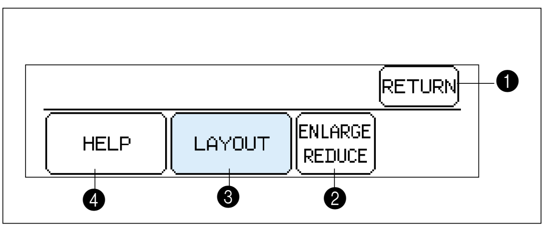
CHANGING THE PATTERN SETTINGS

Editing the layout of the pattern

The position for embroidering the pattern can be changed by using the layout screen. This is useful if you want to embroider a pattern somewhere other than the center of the embroidery area of the frame, such as in the corner of the fabric.

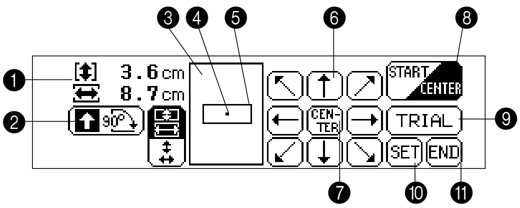


1. Press the **SET** key.

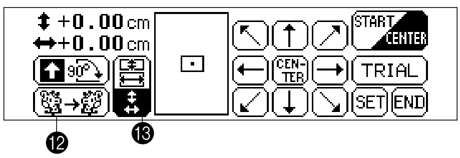


2. Press the **LAYOUT** key.
   - ❶ Press this key to return to the screen that was previously displayed.
   - ❷ Press this key to display a screen that allows you to change the size of the pattern. (Refer to page 108.)
   - ❸ Press this key to display a screen that allows you to change the position and sewing direction of the pattern.
   - ❹ Press this key to display a screen that allows you to search for a specific point in the embroidering of the pattern if the thread breaks while sewing. (Refer to page 112.)

Character & frame patterns



One-point patterns



3. Change the position and sewing direction of the pattern.

❶ Either the height( )and width( )of the current pattern or its horizontal( )and vertical( )embroidering position from the center are displayed here.

Note
Characters and patterns may sometimes be displayed slightly larger than in actual size.

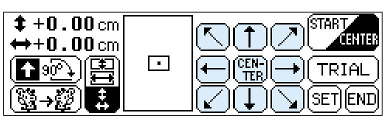
❷ Press this key to rotate the selected pattern 90° clockwise. (Refer to page 106.)
❸ This indicates the entire area of the frame where embroidery can be sewn.
❹ This indicates the current position where the needle will be dropped in relation to the embroidery area of the pattern.
❺ This indicates the embroidering position and embroidery area for the current pattern at the selected size.
❻ Press these keys to move the embroidering position of the pattern within the embroidery area. (Refer to the section below.)
❼ Press this key to return the embroidering position to the center of the embroidery area.
❽ Press this key to move the needle position either to the middle of the pattern or to the sewing start point. Use it when you would like to change the embroidering position. (Refer to page 107.)
❾ Press this key to move the embroidery frame so that it traces the area required for the selected design, allowing you to check the embroidering position.(Refer to page 107.)
❿ Press this key to return to the screen that was previously displayed.
⓫ Press this key to return to the pattern screen.
⓬ Press this key to flip the pattern horizontally (change it to its mirror image). (Refer to page 106.)
Note
This function may not be available for use with some patterns.
⓭ Press this key to switch the display between the size and the embroidering position.

4. After making the desired adjustments, press the **END** key.

Changing the embroidering position

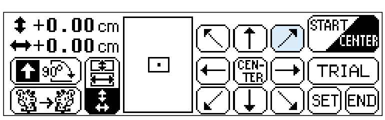


CAUTION
After moving a pattern, check that it fits within the installed embroidery frame. (Refer to page 107 for more details.) If the pattern does not fit correctly within the embroidery frame, the embroidery foot may touch the frame, possibly causing injuries.



1. Press so that it appears as to display the position of the embroidery pattern.
2. Press the arrow key for the direction in which you would like to move the pattern. If the arrow key is pressed once, the pattern moves one step; if the key is pressed continuously, the pattern moves continuously.

Note
– Press the **CENTER** key to return the embroidering position to the center.
– Use the hole on embroidery foot **Q** as a guide.
– Never lower the needle while the embroidery frame is moving.

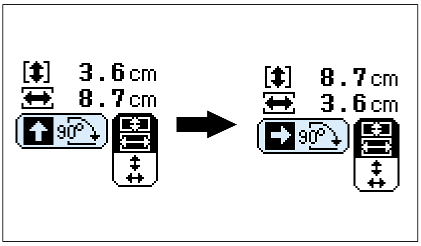


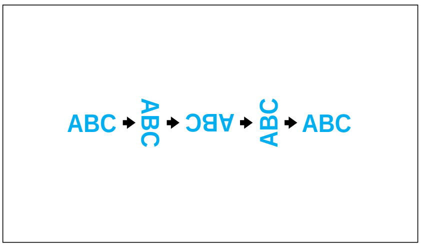
Example: To move the embroidering position toward the upper-right corner

Press .

Changing the pattern direction

LAYOUT →





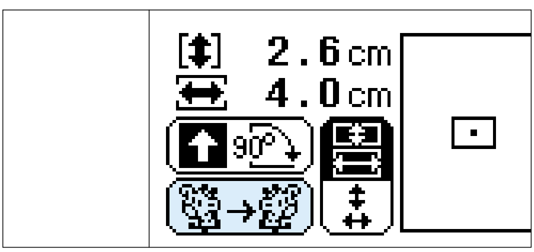
Each time [button] is pressed the pattern is rotated in 90˚ steps clockwise as shown in the illustration at the left. The arrow within [button] shows the direction for the top of the pattern.

Note

Some patterns may be too long to be rotated 90°. In such cases, these patterns can only be rotated by 180°.

Mirror imaging patterns

LAYOUT →



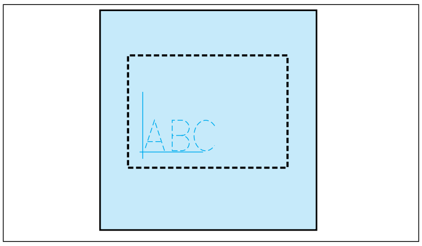
Press [button] so that it appears as [button] to flip the pattern horizontally.

Note

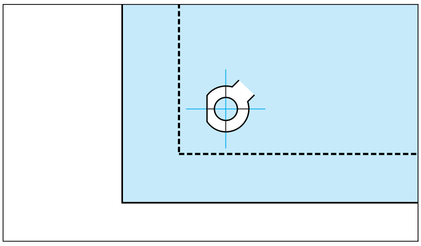
– Pressing [button] so that it changes back to [button] flips the pattern back to a normal image.

– [button] is not displayed for some patterns.

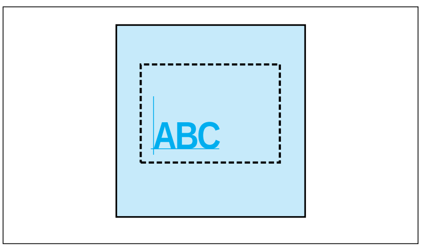
Embroidering from a specific starting point LAYOUT → START/CENTER



1. Mark the starting point on the fabric within the frame as shown in the illustration. The mark cannot be too close to the edge of the frame as the presser foot prevents the needle from getting very close to the frame.

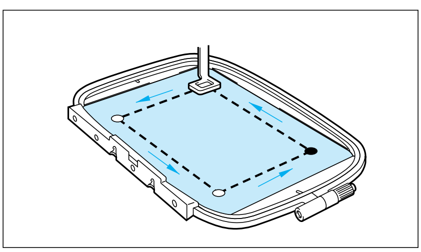


2. Press START/CENTER so that it appears as START/CENTER. The embroidery frame moves so that the needle is at the starting point.



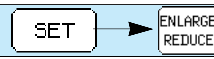
3. Use the arrow keys to move the frame so that the mark on the fabric aligns with the hole in embroidery foot **Q**, and then start embroidering.

Checking the embroidery area LAYOUT → TRIAL



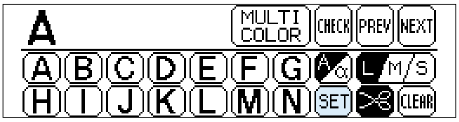
Press the **TRIAL** key to move the embroidery frame so that the presser foot traces the necessary embroidery area for the currently selected pattern.

Note
Do not lower the needle. Instead, use the hole in embroidery foot **Q** as a guide.

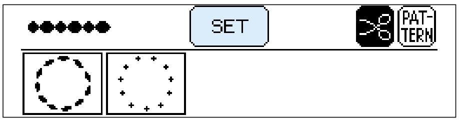
Changing the size of patterns 

The sizes of patterns can be changed as desired.

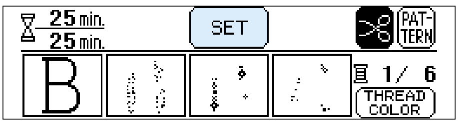
Character patterns



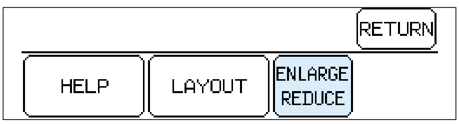
Frame patterns



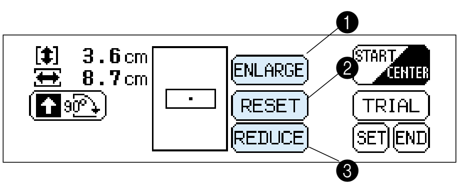
One-point patterns



1. Press the **SET** key.



2. Press .



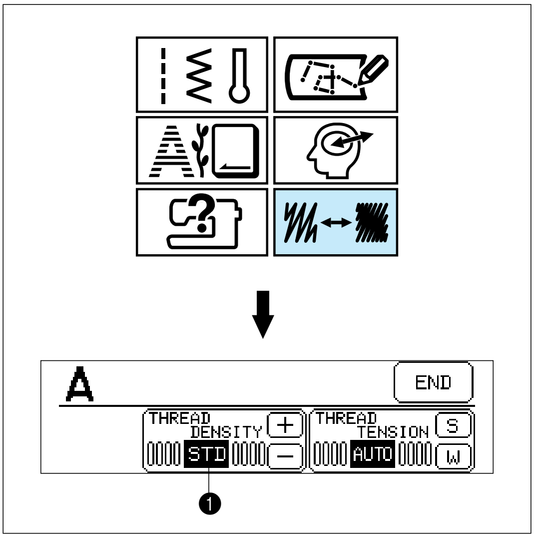
3. Change the size of the pattern.
   ❶ Press this key to make the pattern larger.
   ❷ Press this key to return the pattern to its original size.
   ❸ Press this key to make the pattern smaller.

Note

– The maximum sizes for frame patterns vary according to the pattern.
– Some frame patterns can be enlarged even further if they are rotated 90°.
– Refer to page 105 for details on the other keys in this screen.

4. After making the desired adjustments, press the **END** key.

Changing the thread density

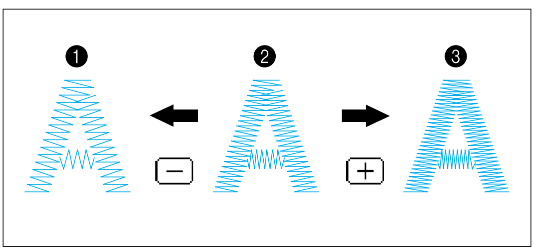


The thread density of characters and some frame patterns can be adjusted so that they are either coarser or finer when they are embroidered.

Note
This function may not be available for use with some patterns.

1. Press the **STITCH ADJUST** key.
2. Adjust the thread density.
   To make the embroidery coarser (sew the stitches farther apart), press the **THREAD DENSITY** key [−].
   To make the embroidery finer (sew the stitches closer together), press the **THREAD DENSITY** key [+].
   The thread density setting changes each time one of these keys is pressed.
3. After making the adjustment, press the **END** key.

Note
The default thread density setting (**STD**) is highlighted in black.

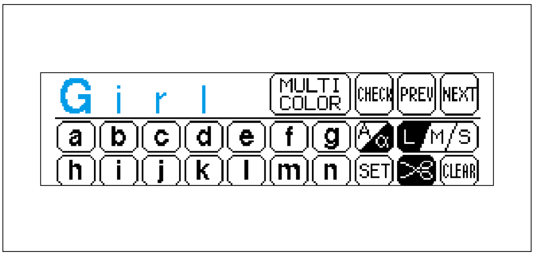


❶ Coarser (stitches farther apart)
❷ Standard thread density
❸ Finer (stitches closer together)

MEMORY

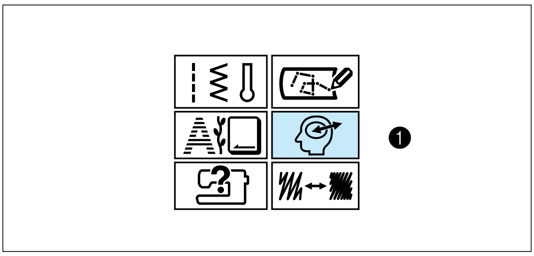
You can save up to 5 different character patterns that you have created and use them again later.

Saving character combinations in the memory

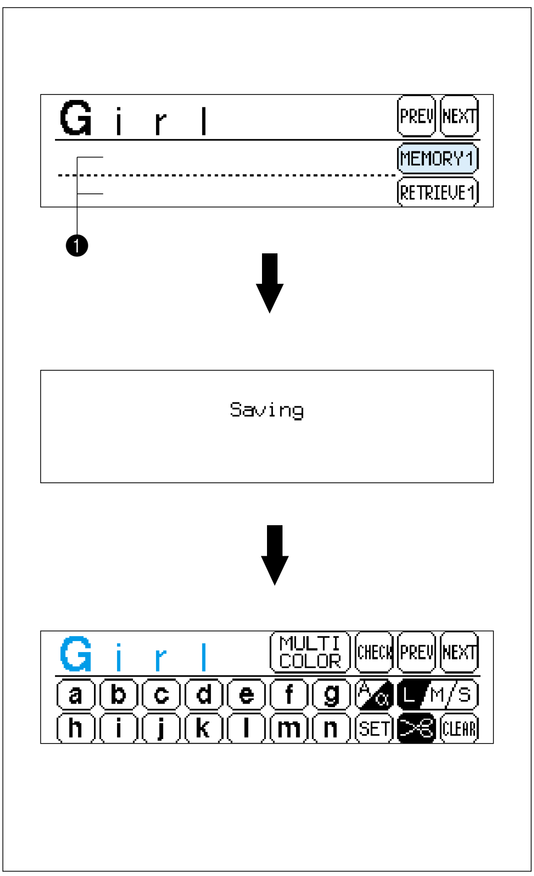


Example: To save the character pattern "Girl" in memory address 1

1. Select a font, and then type in the text to create the pattern.



2. Press the **MEMORY** button.
   ❶ **MEMORY** button



3. Press the **MEMORY 1** key.
   ❶ If a pattern has already been saved in memory address 1, it is displayed on the screen. Press the **NEXT** and **PREV** keys to look for a memory address that is either empty or contains a pattern that can be deleted.

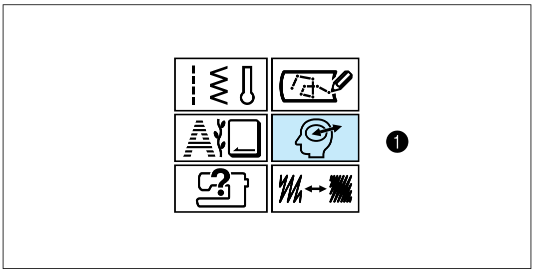
Note

- If a pattern is saved in an address where another pattern has already been saved, the old pattern is deleted.
- Do not turn off the power while a pattern is being saved (while the message "Saving" is displayed).
- It takes approximately 10 seconds for a pattern to be saved. For details on retrieving a pattern which has been saved, refer to page 101.

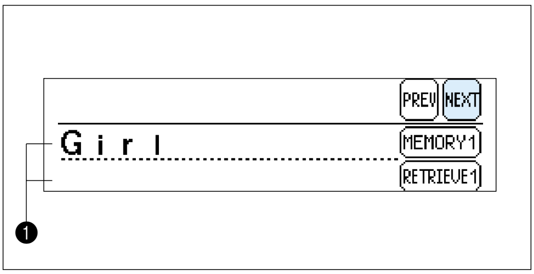
Once the pattern has been saved, the display returns to the previous screen.

Retrieving a pattern which has been saved

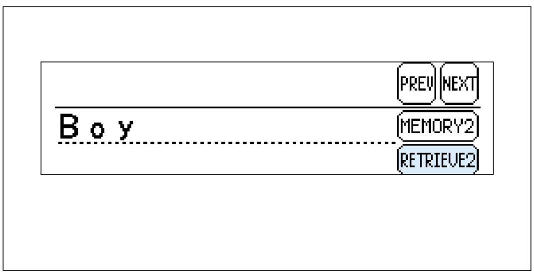
Example: To recall the pattern "Boy" that has already been saved in memory address 2



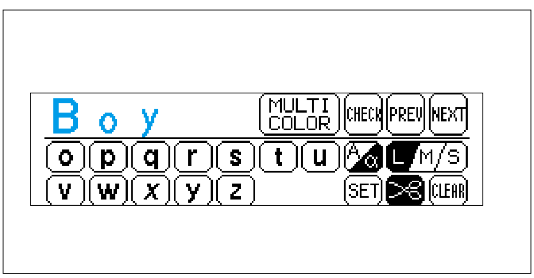
1. Press the **MEMORY** button.
   ❶ **MEMORY** button



2. Press the **NEXT** key.
   ❶ If the desired pattern is not displayed on the screen, press the **NEXT** and **PREV** keys until the desired pattern is shown.



3. Press the **RETRIEVE 2** key.



The retrieved pattern appears on the screen and can be edited and embroidered.

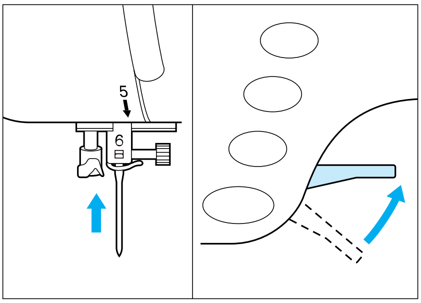
Note
Patterns which are saved from an embroidery card can only be retrieved if the card containing that pattern has been inserted into the card slot of the sewing machine.

ADJUSTMENTS WHILE EMBROIDERING

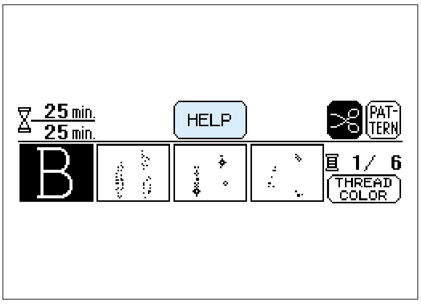
Continuing embroidering

HELP

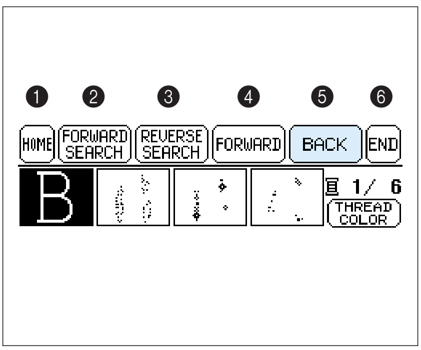
If one of the threads break or if you stop the sewing machine to adjust the stitching location, you may need to continue sewing from a point other than the current one. In that case, the help screen can be used to find your desired stitch in the pattern.



1. **If the upper thread has broken:** Stop the sewing machine, raise the needle and the presser foot lever, and then re-thread the upper thread.
   If the bobbin thread has broken or the bobbin has run out of thread: Cut the upper thread above the fabric and remove the embroidery frame. Remove any thread that is tangled under the embroidery. Re-thread the bobbin thread and re-attach the embroidery frame.



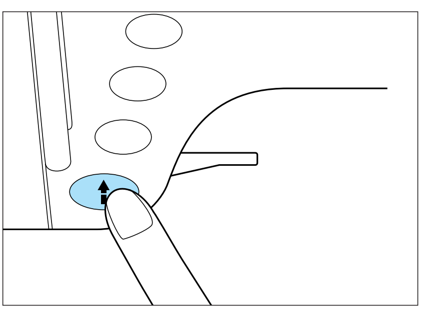
2. Press the **HELP** key.



3. Press the **BACK** key to move back a few stitches slightly before the point where the thread broke.

Note
If the desired point cannot be reached by pressing the **BACK** key, press the **REVERSE SEARCH** key to return to the starting point of the desired color, and then press the **FORWARD** key until you reach the point at which you would like to resume embroidering. Then, press the start/stop button.

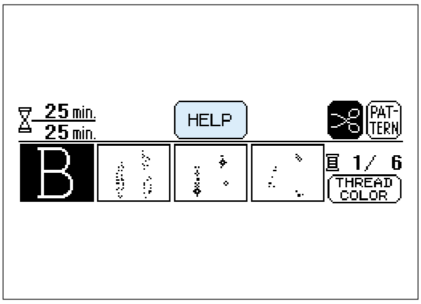
❶ Press this key to move back to the start position for the entire embroidery pattern.
❷ Press this key to select the start position for the next color or character without embroidering.
❸ Press this key to select the start position for the previous color or character without embroidering.
❹ Press this key to move the embroidery frame so that the needle is positioned one stitch ahead without embroidering. If this key is pressed continuously, the stitching moves ahead in jumps of 9 stitches starting from the 6th stitch.
❺ Press this key to move the embroidery frame so that the needle is positioned one stitch backward without embroidering. If this key is pressed continuously, the stitching moves backward in jumps of 9 stitches starting from the 6th stitch.
❻ Press this key to return to the previous screen (pattern screen).



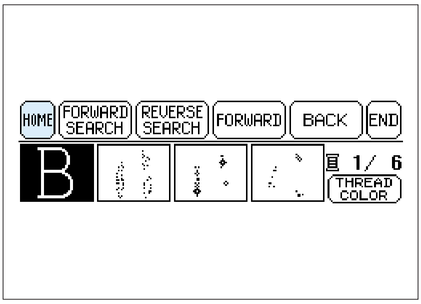
4. Lower the presser foot lever and continue embroidering.

Note
The start/stop button may not function for a few seconds after the **FORWARD SEARCH** or **REVERSE SEARCH** key is pressed; however, this is not a sign of a malfunction.

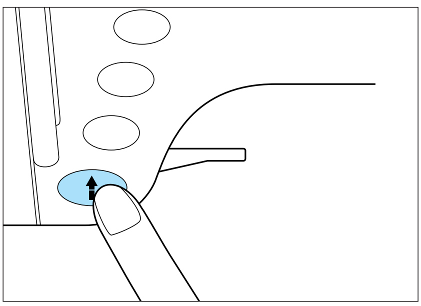
Embroidering again from the beginning HELP → HOME



1. Press the **HELP** key.



2. Press the **HOME** key. The embroidery frame moves so that the needle returns to the embroidering starting point.

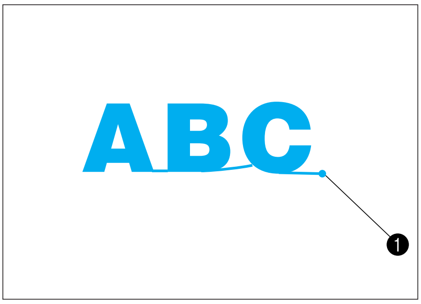


3. Lower the presser foot lever and start embroidering.

EMBROIDERY APPLICATIONS

Linking characters

If all of the characters cannot be sewn at one time, sew them in sections while linking them.



Example: To embroider "ABC", then link "DE"

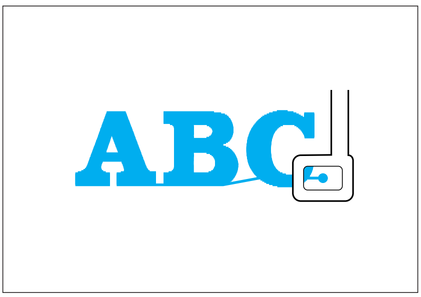
1. Select a font and type in "ABC".

2. Press the **SET** key, then the **LAYOUT** key to display the layout screen.

3. Move the needle to the starting point. (Make sure the button appears as 

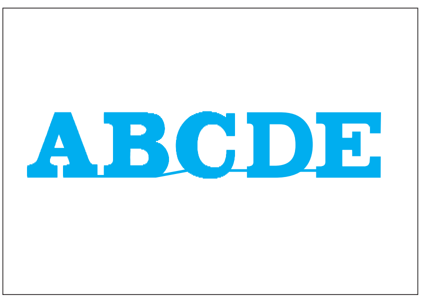
.)

4. Press the start/stop button to start embroidering.
   Once embroidering is completed, the machine automatically sews the end point. This point can be used as the starting point for the next section of text.
   ❶ End point



5. Adjust the fabric within the embroidery frame so that the last character and the end point are just inside the left edge of the frame.

Note
Make sure that the embroidering line aligns with the reference lines on the embroidery sheet that you are using.



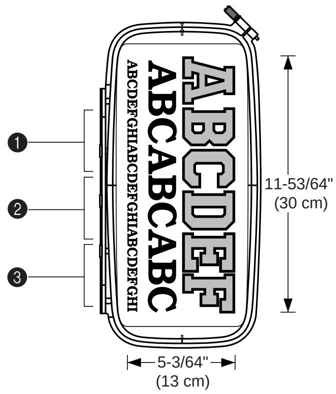
6. Erase "ABC", and then type in "DE".

7. Press the **SET** key, then the **LAYOUT** key to display the layout screen.

8. Adjust the embroidering position so that the hole in embroidery foot **Q** aligns with the end point for "ABC".

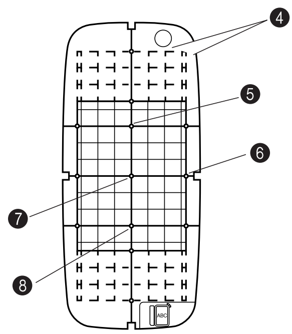
9. Press the start/stop button to continue embroidering.

Using the extra-large embroidery frame (optional)



By attaching this extra-large embroidery frame at each of its three installation positions, extra-large designs can be embroidered, for example when sewing logos onto sweatshirts.

❶ Top installation position
❷ Middle installation position
❸ Bottom installation position

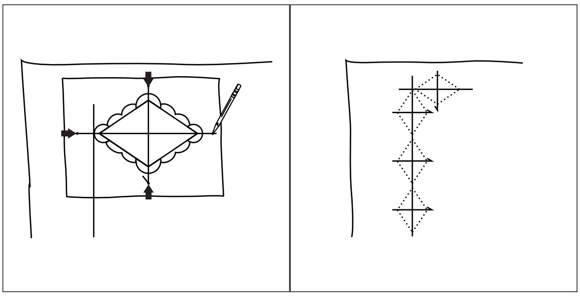


EMBROIDERY SHEET

❹ Embroidering range
❺ Center of the pattern (when installed at position ❶)
❻ Reference line
❼ Center of the pattern (when installed at position ❷)
❽ Center of the pattern (when installed at position ❸)

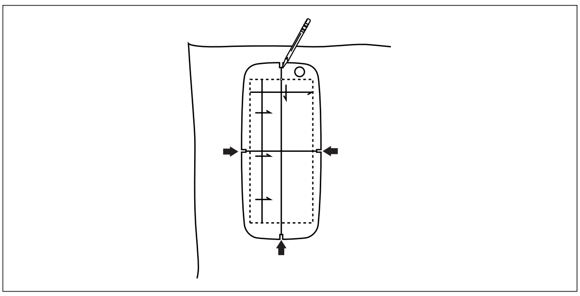
Note
When using the extra-large embroidery frame, be sure that there are no objects within 30 cm from the sewing machine, otherwise a misaligned embroidered pattern or injuries may occur.

Connecting patterns

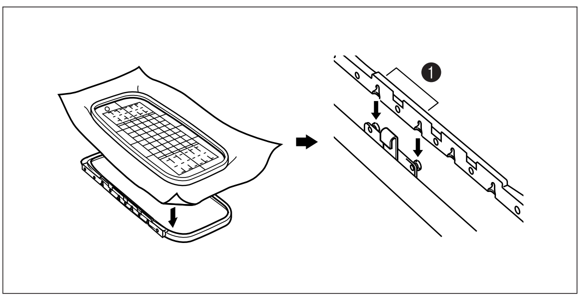


Example: To embroider connecting patterns

1. Mark the location on the fabric where you wish to embroider the design.

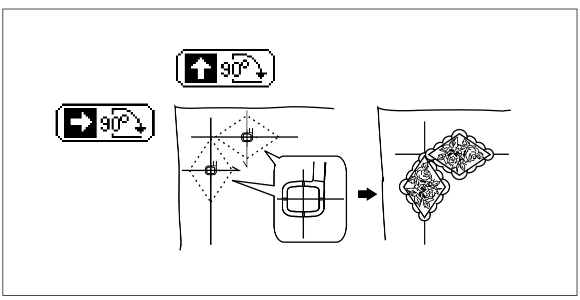


2. Position the embroidery sheet over the entire design drawn on the fabric so that the reference lines of the embroidery sheet align with the center of the design, and then draw reference lines for the entire design.

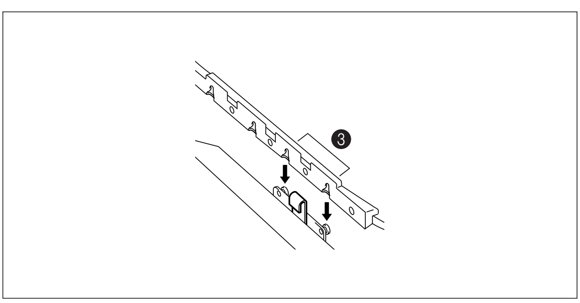


3. Stretch the fabric between the inner and outer embroidery frames while making sure that the reference lines on the embroidery sheet remain aligned with reference lines for the design drawn on the fabric. Then, attach the embroidery frame to the embroidery arm at the top installation position. (Refer to pages 90 - 92 for more details on attaching the embroidery frame.)

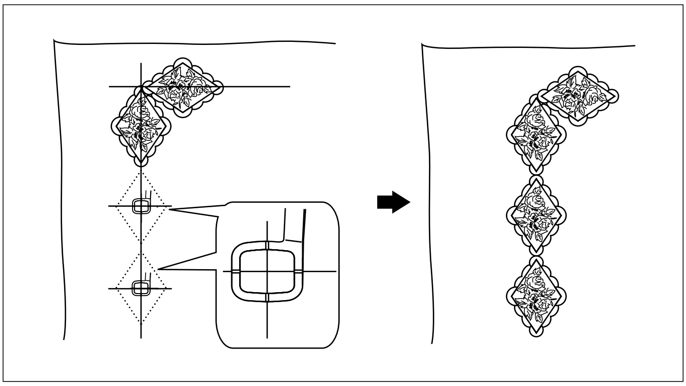
   1 Top installation position



4. Choose a pattern.
5. Before embroidering each of the two patterns shown in the illustration, press the **LAYOUT** key, and position the pattern correctly. To rotate the pattern, press [90° key] (refer to page 106). To position the frame so that the pattern will be embroidered correctly, press [START/CENTER] so that it appears as [START/CENTER] (refer to page 107), and then use the arrow keys to align the needle with the center of each pattern's reference lines (refer to page 105).



6. Remove the embroidery frame, and then re-attach it to the embroidery arm at the bottom installation position.



7. Before embroidering the bottom two patterns shown in the illustration, press the **LAYOUT** key, and position the pattern correctly. To position the frame so that the pattern will be embroidered correctly, press 

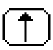
so that it appears as 

(refer to page 98), and then use the arrow keys to align the needle with the center of each pattern's reference lines (refer to page 105).

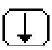
Note

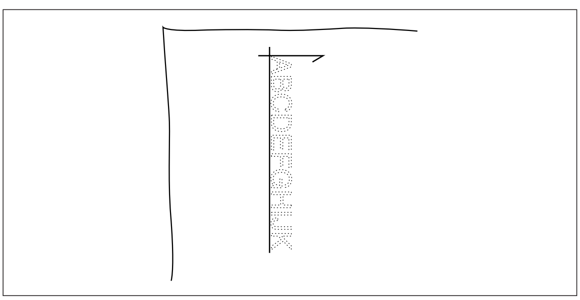
When combining patterns from embroidery cards no. 14 and 31:

With the extra-large embroidery frame attached at any of the three installation positions (top, middle, or bottom), patterns A, B, and C can be combined and embroidered.

Pattern A: Before embroidering, press the **LAYOUT** key, press  so that it appears as , and then press  to move the pattern to +3.60.

Pattern B: Embroider the pattern without changing its position.

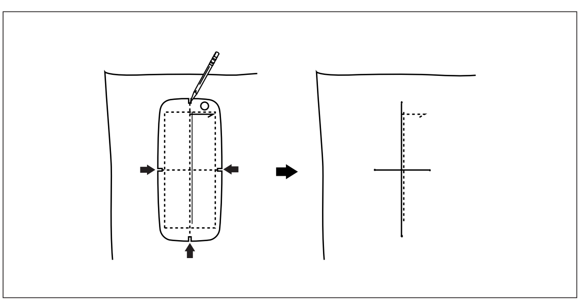
Pattern C: Before embroidering, press the **LAYOUT** key, press  so that it appears as , and then press  to move the pattern to -3.60.



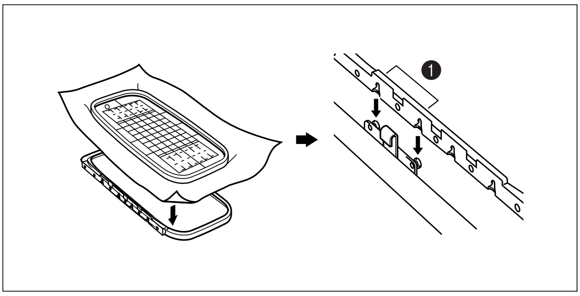
Connecting letters

Example: To embroider "ABCDEFGHIJK"

1. Mark the location on the fabric where you wish to embroider the design.



2 Position the embroidery sheet over the entire design drawn on the fabric so that the reference lines of the embroidery sheet align with the center of the design, and then draw reference lines for the entire design.



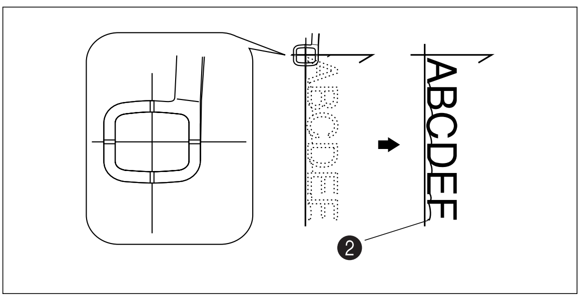
3. Stretch the fabric between the inner and outer embroidery frames while making sure that the reference lines on the embroidery sheet remain aligned with reference lines for the design drawn on the fabric. Then, attach the embroidery frame to the embroidery arm at the top installation position. (Refer to pages 90 - 92 for more details on attaching the embroidery frame.)

   ❶ Top installation position

4. Select a medium size font and type in "ABCDEF".

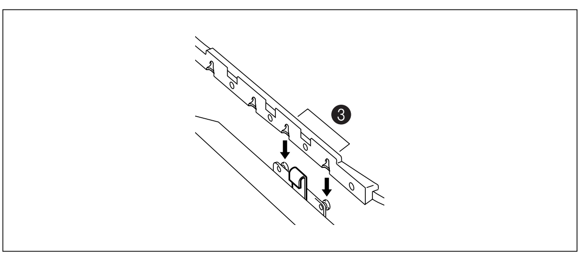
5. Rotate the pattern so that it is positioned vertically by pressing the **SET** key, then **LAYOUT** key, and then pressing [90°] so that it appears as [90°] (refer to page 106).

   Press [START CENTER] so that it appears as [START CENTER].

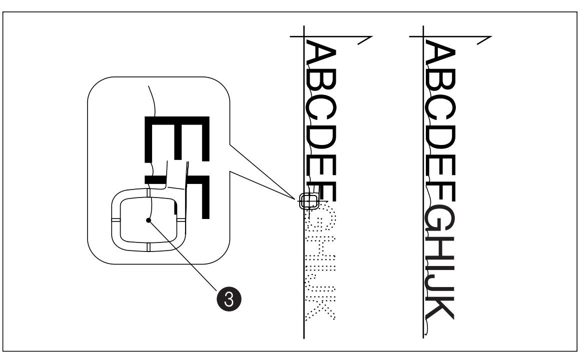


6. Use the arrow keys to align the needle with the point where the reference lines cross each other, and then begin embroidering.

   ❷ Do not cut the thread after embroidering "ABCDEF".



7. Remove the embroidery frame, and then re-attach it to the embroidery arm at the bottom installation position.

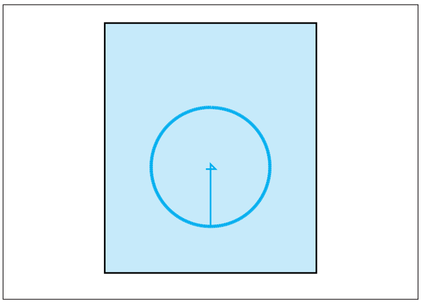


8. Erase "ABCDEF", and then type in "GHIJK".

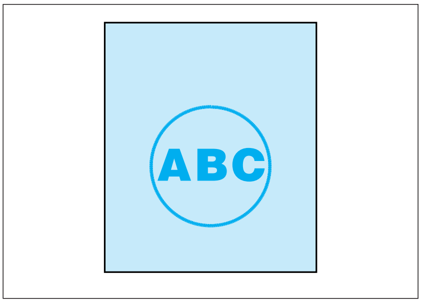
9. Position the frame so that the pattern will be embroidered correctly by pressing the **LAYOUT** key, pressing [START CENTER] so that it appears as [START CENTER] (refer to page 107), and then using the arrow keys to align the needle with the last stitch of "ABCDEF" (refer to page 105).

   ❸ Last stitch after embroidering "ABCDEF"

Combining a frame pattern with a design



1. Create a frame pattern, and then embroider it.
   A cross (+) is sewn in the center of the frame after it is embroidered. This mark can be used as a guide for positioning characters or other patterns within the frame.

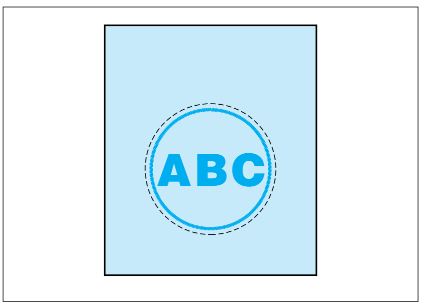


2. Create the inner design, and then press the **SET** key, then the **LAYOUT** key to display the layout screen.

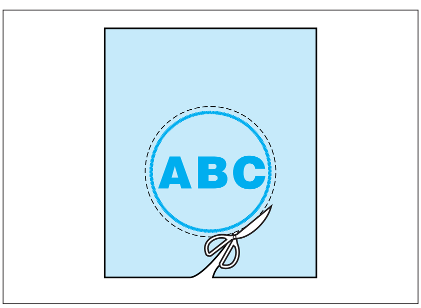
3. Select the center needle position (Make sure the button appears as 

.), and then adjust the embroidery pattern position so that the hole in embroidery foot **Q** aligns with "+". Then, embroider the design.

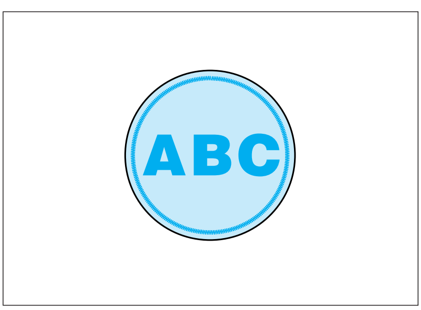
Making badges or decorative patches



1. After embroidering a frame and the inner design, select the same frame pattern, press , as the stitch, and then sew the same frame pattern around the outside of the original frame so that it is slightly larger than the original.

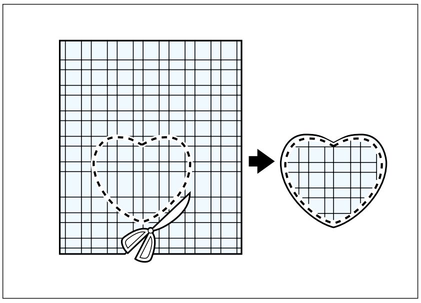


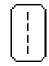
2. Cut cleanly around the outside frame, following the line of the outside stitching.

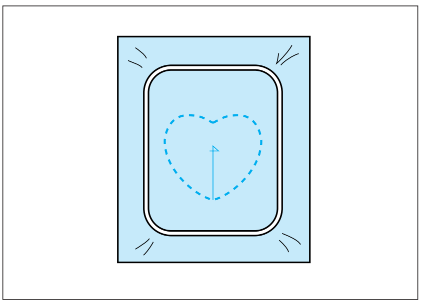


Embroidering appliqués (using a frame pattern)

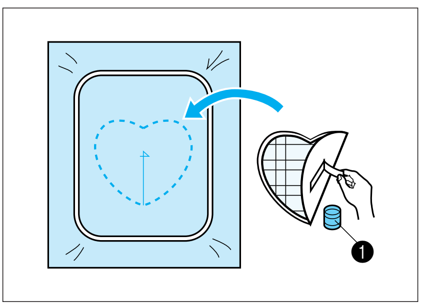
You can easily sew appliqués by adjusting frame patterns to the same shape and size as the appliqué.



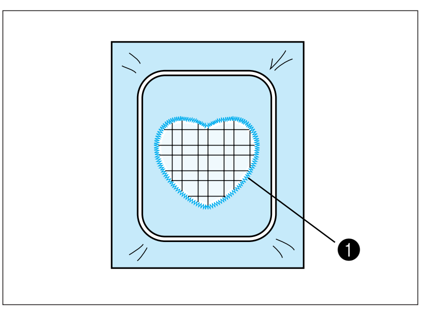
1. Select the appliqué material for the project, attach stabilizer material to it, place it in the embroidery frame, and then attach the embroidery frame to the machine.
2. Select the frame shape to be embroidered and press  as the stitch. Embroider the frame onto the appliqué material. Remove the fabric from the embroidery frame, and cut neatly around the outside of the shape made by the stitches.



3. Embroider the base fabric in the same way using the same frame pattern shape and the same stitch as in step 2.



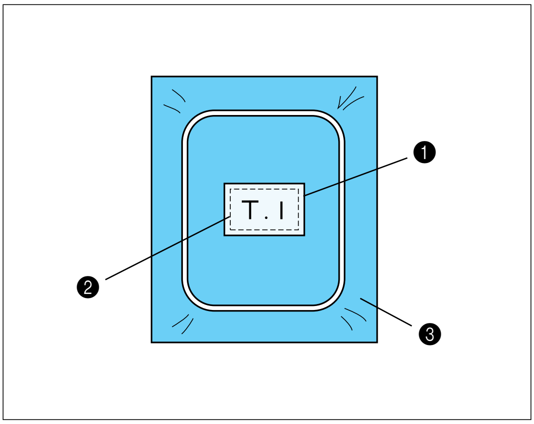
4. Apply a thin layer of fabric glue to the back of the appliqué embroidered in step 2, and then attach it to the base fabric so that it aligns with the embroidered frame pattern.
   ❶ Fabric glue



5. Without changing the frame shape or size, select an appliqué stitch, and embroider the appliqué material onto the project.

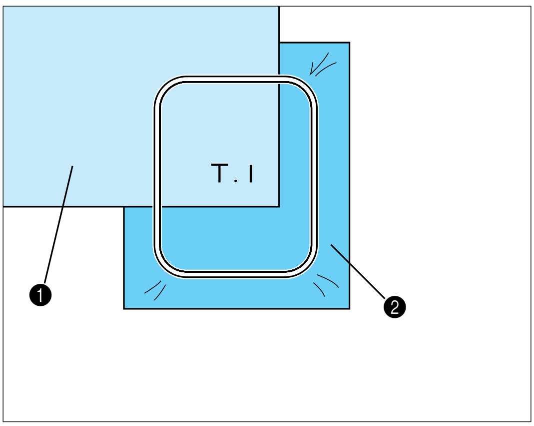
Embroidering onto small pieces of fabric or in corners

Use stabilizer material to provide extra support while embroidering. After embroidering is completed, carefully remove the stabilizer material. Use stabilizer material which is specially designed for embroidering.



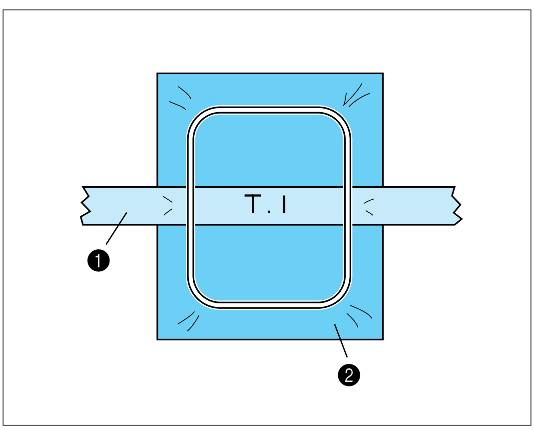
Case A

❶ Fabric
❷ Iron on the stabilizer material. (If you do not wish to use an iron, attach the stabilizer material with a basting stitch.)
❸ Stabilizer



Case B

❶ Fabric
❷ Stabilizer



Case C

❶ Ribbon (Secure with double-sided tape.)
❷ Stabilizer

Note

Temporary spray-on adhesive can also be used to secure unusually shaped objects. If adhesive is used, some glue may get on the presser foot, needle and needle plate. After finishing embroidering the appliqué pattern, clean away the glue.

MAINTENANCE

CLEANING

Cleaning the screen

CAUTION
Disconnect the power supply cord from the wall socket before cleaning the screen, otherwise injuries or an electric shock may occur.

If the front panel is dirty, wipe it gently with a soft, dry cloth. Do not use any organic solvents or detergents.

Cleaning the machine surface

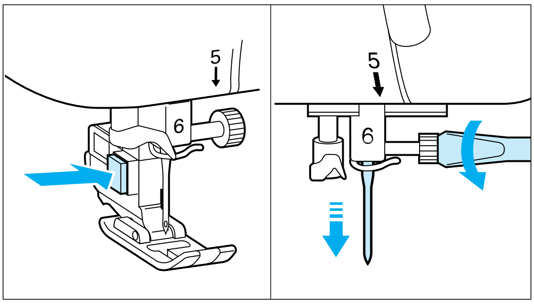
CAUTION
Disconnect the power supply cord from the wall socket before cleaning the machine surface, otherwise injuries or an electric shock may occur.

If the surface of the machine is dirty, lightly soak a cloth in neutral detergent, squeeze it out firmly, and then wipe the surface of the machine. After cleaning it once with a wet cloth, wipe it again with a dry cloth.

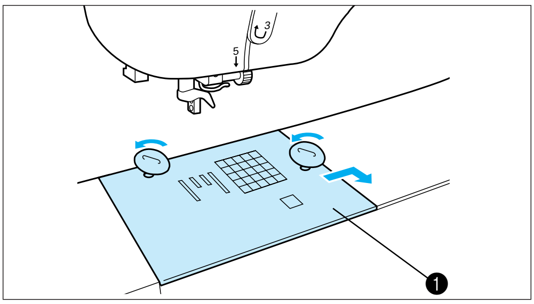
Cleaning the shuttle

CAUTION
Disconnect the power supply cord from the wall socket before cleaning the shuttle, otherwise injuries or an electric shock may occur.

Sewing performance will suffer and bobbin thread detection will become unreliable if dust collects in the shuttle; therefore, it should be kept clean at all times.

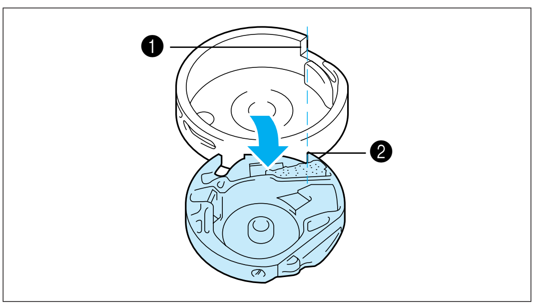


1. Set the main power switch to " **O** ", and then remove the presser foot holder and the needle.

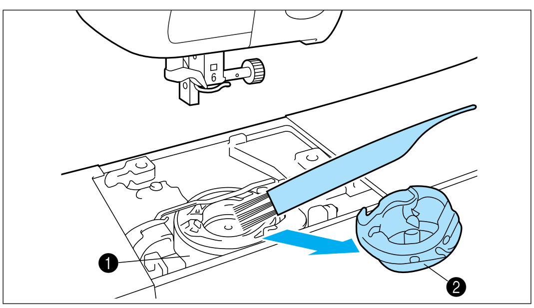


2. Loosen the screws with the enclosed screwdriver or disc-shaped screwdriver.

3. Remove the needle plate.
   ❶ Needle plate

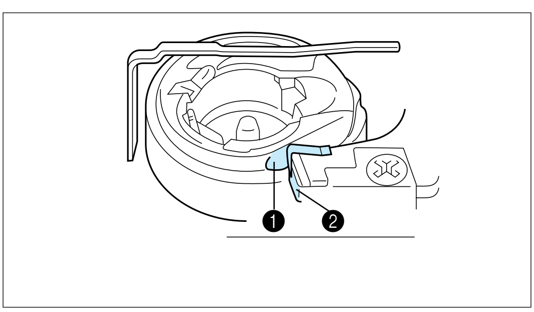


4. Turn the balance wheel towards you until the edge of the notch in the shuttle aligns with the edge of the race shelf, and then remove the race.
   ❶ Edge of notch in shuttle
   ❷ Edge of race shelf



5. Take out the shuttle.

6. Remove accumulated lint and thread from the inside of the shuttle and race with a brush or a vacuum cleaner.
   ❶ Race
   ❷ Shuttle

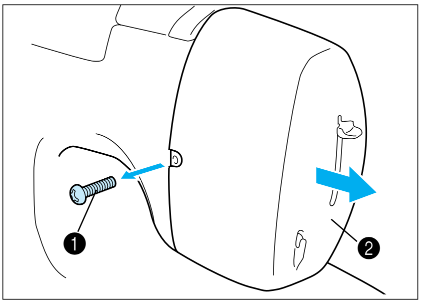


7. Insert the shuttle by aligning the projection on the shuttle with the spring on the stopper.
   ❶ Projection
   ❷ Spring

Note

Lint and dust accumulated in the race will sometimes cause poor stitching or a malfunction of the bobbin thread sensor.

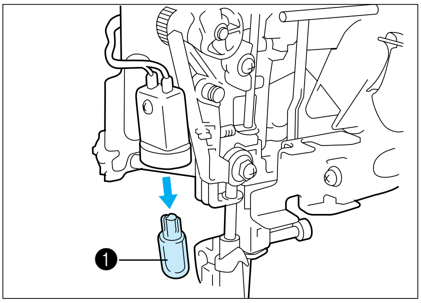
CHANGING THE LIGHT BULB



1. Set the main power switch to " **O** " and unplug the power supply cord from the electrical outlet prior.

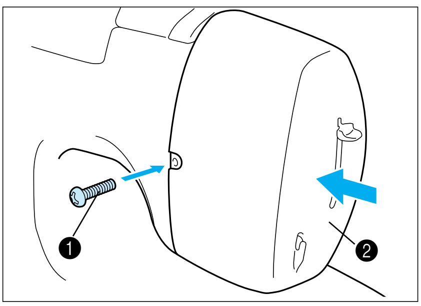
2. Loosen the screw on the back of the sewing machine head.

3. Remove the end cap.
   ❶ Screw
   ❷ End cap



4. Replace the snap-in light bulb with a new one.
   ❶ Light bulb

Note
Light bulbs are available through your dealer. (12 V, 5 W; Parts code XA2037001)



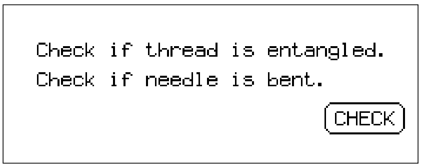
5. Re-attach the end cap.

6. Tighten the screw.
   ❶ Screw
   ❷ End cap

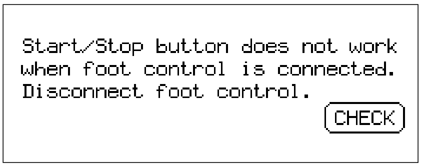
ERROR MESSAGES

If the machine is not properly set when the start/stop button is pressed, or if a correction of your operating procedure is required, the machine will not start and will instruct you with an alarm and a warning message on the LCD.

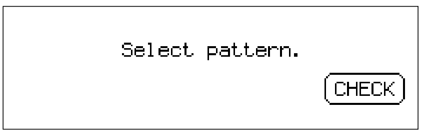
Warning messages



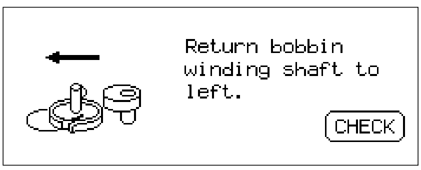
This message appears when the motor becomes locked, such as when the thread is entangled.



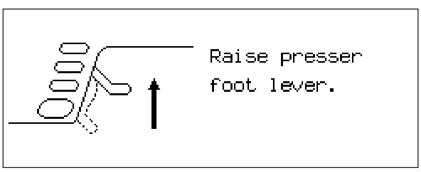
This message appears when the start/stop button is pushed while the foot controller is connected.



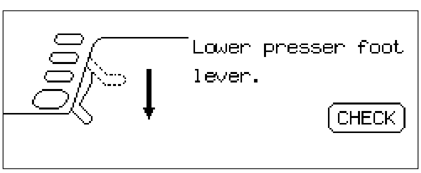
This message appears when the start/stop button, or reverse/reinforcement stitch button is pressed, but no pattern has been selected.



This message appears when the reverse/reinforcement stitch button, needle position button or thread cutter button is pushed while the bobbin winder shaft is moved to the right.



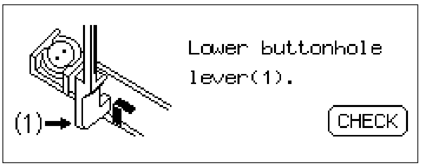
This message appears when the embroidery unit is being initialized, but the presser foot is lowered.



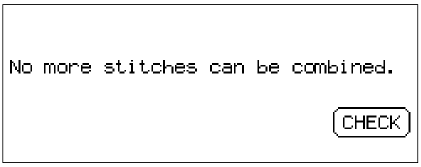
This message appears when the start/stop button, reverse/reinforcement stitch button, thread cutter button or the foot controller is pressed while the presser foot lever is raised.



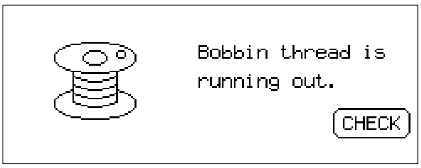
This message appears when the start/stop button or reverse/reinforcement stitch button is pressed while a pattern other than a buttonhole is selected and the buttonhole lever is lowered.



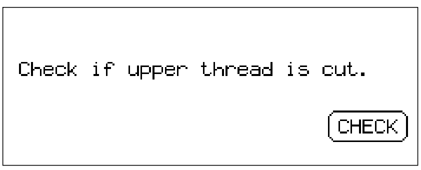
This message appears when the start/stop button or reverse/reinforcement stitch button is pressed while a buttonhole pattern is selected and the buttonhole lever is raised.



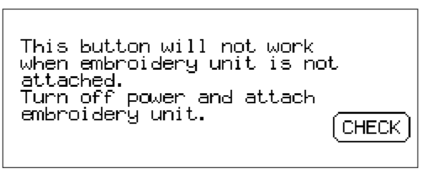
This message is displayed when trying to combine more stitch patterns than possible.



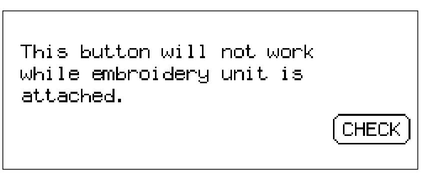
This message appears when the machine detects that the amount of bobbin thread remaining is low.



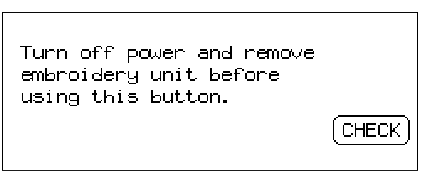
This message appears when the machine detects that either there is no upper thread or it is cut. If the upper thread is cut, re-thread it.



This message appears when the **FONT/DECORATIVE** key or **MEMORY** key is pressed while the embroidery unit is not installed.



This message appears when the reverse/reinforcement stitch button is pressed while the embroidery unit is installed.



This message appears when the **SEWING** key is pressed while the embroidery unit is installed.

Select pattern.
CHECK

This message appears when the STITCH ADJUST key is pressed before selecting a pattern.

Foot controller will not work while embroidery unit is attached.
Remove foot controller
CHECK

This message appears when the foot controller is used while the embroidery unit is installed.

Pattern is too big for large frame. To add more patterns, rotate this pattern.
90°
CHECK

This message appears when the entered characters are too long to fit within the embroidery frame. More characters may be added if the pattern is rotated 90 degrees.

Complete pattern entry.
CHECK

This message appears when you try to save a pattern design while using the MY CUSTOM STITCH™ function before the stitch has been completely created and the **END** key is pressed, or when the start/stop button is pressed before the frame pattern has been completely created.

This pattern can not be saved in memory.
CHECK

This message appears when the pattern that you tried to store could not be stored.

No pattern is memorized.
CHECK

This message appears when trying to retrieve a pattern, but no patterns have been stored.

Saved on a card.

This message appears when trying to retrieve a pattern from a memory card that is not inserted.

Card is not inserted.
Turn off power and
insert card.
CHECK

This message appears when [key] is pressed while no memory card is inserted into the slot.

This card cannot be used.
CHECK

This message appears when [key] is pressed while a memory card that cannot be read by this machine is inserted.

Saved on another card.

This message appears when trying to retrieve a pattern from one memory card while a different memory card is inserted.

This key does not work when needle
is at low position.
Raise the needle to high position
and touch key again.
CHECK

This message appears if an attempt is made to move the embroidery frame while the needle is lowered.

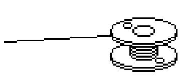
Selected embroidery pattern
exceeds size of large frame.
CHECK

This message appears when the size of the pattern is changed so that it exceeds the size of the embroidery area.

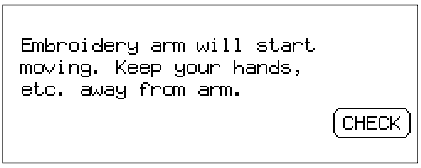
Raise the needle to high position.

This message appears if the needle is lowered when the sewing machine is turned on.

Operation messages


Winding bobbin
thread.

This message appears while the bobbin is winding.



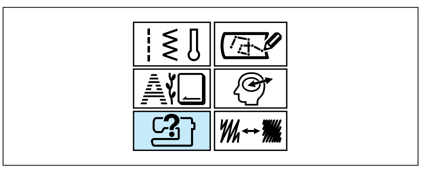
This message appears when the sewing machine is turned on while the embroidery unit is installed.



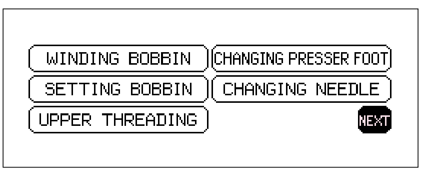
This message appears while storing a pattern in the memory.

Troubleshooting

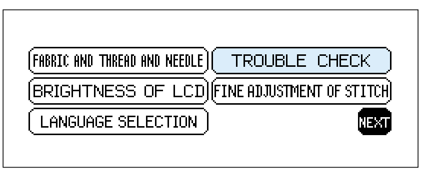
This sewing machine is equipped with an easy-to-use troubleshooting feature, which provides assistance when there is a problem sewing. Press the corresponding key for the problem to see possible causes of the problem.



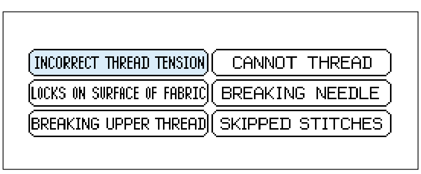
1. Press the **OPERATION GUIDE** button.



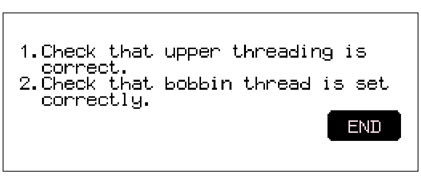
2. Press the **NEXT** key.



3. Press the **TROUBLE CHECK** key.



4. Press the key describing the problem.



5. Follow the advice to check the sewing machine.
6. Press the **END** key to quit the troubleshooting function.

Thread and stitch problems

Before calling for service, check the following items. If the problem persists, contact the store where the sewing machine was purchased or your nearest service representative.

Symptom	Probable cause	Remedy
1. Upper thread breaks	1. Upper threading is not correct.	1. Re-thread upper thread.
	2. Upper thread is tangled.	2. Remove thread ends from race and shuttle.
	3. Spool of thread is not correctly set.	3. Set spool of thread correctly.
	4. Correct needle is not used.	4. Install proper needle.
	5. Shuttle is damaged.	5. Contact service representative.
2. Bobbin thread breaks	1. Upper thread is tangled.	1. Remove thread ends from race and inner shuttle and from around spool pin.
	2. Bobbin is not threaded properly.	2. Re-thread bobbin thread.
3. Skipped stitches	1. Needle is not correctly inserted.	1. Insert needle correctly.
	2. Correct needle is not used.	2. Install proper needle.
	3. The combination of fabric, thread and needle is not correct.	3. Check “FABRIC/THREAD/NEEDLE COMBINATIONS” chart on page 19.
	4. Dust is clinging to bottom of needle plate.	4. Remove dust by cleaning with a brush.
	5. Upper threading is not correct.	5. Re-thread upper thread.
4. Fabric puckers	1. Threading is not correct	1. Re-thread upper and bobbin threads correctly.
	2. Correct needle is not used.	2. Install proper needle.
	3. Combination of fabric, thread and needle is not correct.	3. Check “FABRIC/THREAD/NEEDLE COMBINATIONS” chart on page 19.
	4. Thread tension is set to **AUTO**.	4. Refer to “THREAD TENSION” on page 34.
5. Inability to thread needle	1. Needle is not correctly inserted.	1. Insert needle correctly.
	2. Needle threader lever cannot be lowered.	2. Turn balance wheel to raise needle to its highest position.
6. Inability to adjust thread tension	1. Upper threading is not correct.	1. Re-thread upper thread.
	2. Bobbin is not threaded correctly.	2. Re-thread bobbin thread.
	3. Combination of fabric, thread and needle is not correct.	3. Check “FABRIC/THREAD/NEEDLE COMBINATIONS” chart on page 19.
	4. Thread tension is set to **AUTO**.	4. Refer to “THREAD TENSION” on page 34.

Mechanical problems

Symptom	Probable cause	Remedy
1. Fabric is not fed properly	1. Feed dogs are lowered.	1. Raise feed dogs.
	2. Combination of selected stitch and presser foot is not correct.	2. Attach correct presser foot.
	3. Correct needle is not being used.	3. Install correct needle.
	4. Thread is entangled.	4. Remove thread ends from race or inner shuttle.
2. Needle breaks	1. Needle is not correctly inserted.	1. Insert needle correctly.
	2. Correct needle is not used.	2. Install proper needle.
	3. Combination of fabric, thread and needle is not correct.	3. Check “FABRIC/THREAD/NEEDLE COMBINATIONS” chart on page 19.
	4. Fabric is pulled too much.	4. Sew without pulling fabric; just guide it.
3. Machine is noisy, or running at a slow speed, or thread trimming is not good	1. Dust is clinging to bottom of needle plate.	1. Remove dust by cleaning with a brush.
4. Machine does not start	1. Start/stop button is not pressed.	1. Press start/stop button.
	2. Machine is turned off.	2. Set main power switch to “ **I** ”.
	3. Presser foot is not lowered.	3. Lower presser foot lever.
	4. Check for error messages on LCD.	4. Refer to “ERROR MESSAGES” on page 125.
5. Embroidery unit does not work	1. Machine is turned off.	1. Set main power switch to “ **I** ”.
	2. Embroidery unit is not correctly attached.	2. Correctly attach embroidery unit to sewing machine.
	3. Memory card is not inserted.	3. Turn off machine, then insert memory card.
	4. Check for error messages on LCD.	4. Refer to “ERROR MESSAGES” on page 125.
	5. Embroidery unit was not correctly initialized.	5. Refer to “Initializing the embroidery unit” on page 87.

SEWING CHART

SELECTION KEY	NAME OF PATTERN	PATTERN	TYPE OF PRESSER FOOT	USE	REVERSE/REINFORCEMENT STITCHING	STITCH WIDTH ADJUSTMENT	STITCH LENGTH ADJUSTMENT	AUTOMATIC THREAD CUTTING	AUTOMATIC REVERSE/ REINFORCEMENT STITCHING
UTILITY STITCH	Straight (Left)		J	General sewing, gathering, pintuck sewing, etc.	R	★	★	C	T
	Straight (Mid)		J	General sewing, gathering, pintuck sewing, etc.	R	–	★	C	T
	Triple stretch stitch		J	General reinforcement sewing	△	★	★	C	T
	Stretch stitch		J	Straight stitching (attaching sleeves, reinforcing, sewing stretch fabrics)	△	★	★	C	T
	Basting stitch		J	Basting	△	★	★	C	T
	Zigzag stitch		J	Overcasting, patchwork	R	★	★	C	T
	Elastic zigzag		J	Overcasting (medium, thick and stretch fabrics), tape attaching, darning	△	★	★	C	T
	Elastic zigzag		J	Overcasting (medium and stretch fabrics), tape attaching, darning	△	★	★	C	T
	Overcasting		G	Reinforcing of thin and medium fabrics	△	★	★	C	T
	Overcasting		G	Reinforcing of thick fabrics	△	★	★	C	T
	Overcasting		J	Reinforcing of medium stretch fabric and thick fabrics, decorative stitching	△	★	★	C	T
	Overcasting		G	Reinforcing of medium, thick and easily frayed fabrics	△	★	★	C	T
	Overcasting		J	Reinforcement of stretch fabrics	△	★	★	C	T
	Overcasting		J	Reinforcement of stretch fabrics	△	★	★	C	T
	Blind hem stitch		R	Reinforcement of skirts	△	★	★	C	T
	Blind hem stitch		R	Reinforcement of skirts with stretch fabrics	△	★	★	C	T
	Buttonhole		A	Buttonholes for blouses and shirts		★	★	C	T
	Buttonhole		A	Buttonholes for jeans and trousers		★	★	C	T
	Buttonhole		A	Buttonholes for thick coats		★	★	C	T
	Buttonhole		A	Buttonholes for pajamas and shirts		★	★	C	T
	Buttonhole		A	Buttonholes for stretch fabrics		★	★	C	T
	Buttonhole		A	Buttonholes for stretch fabrics		★	★	C	T
	Buttonhole		A	First step in making a bound buttonhole		★	★	C	T

SELECTION KEY	NAME OF PATTERN	PATTERN	TYPE OF PRESSER FOOT	USE	REVERSE/REINFORCEMENT STITCHING	STITCH WIDTH ADJUSTMENT	STITCH LENGTH ADJUSTMENT	AUTOMATIC THREAD CUTTING	AUTOMATIC REVERSE/ REINFORCEMENT STITCHING
UTILITY STITCH	Buttonhole		A	Buttonholes for suits and overalls		★	★	C	T
	Buttonhole		A	Buttonholes for jeans and trousers		★	★	C	T
	Buttonhole		A	Buttonholes for thick coats		★	★	C	T
	Bar tack		A	Reinforcement of pockets, etc.		★	★	C	T
	Darning		A	Darning of medium fabrics		★	★	C	T
	Darning		A	Darning of thick fabrics		★	★	C	T
	Tape attaching		J	Attaching tape to thin and medium stretch fabrics	△	★	★	C	T
	Eyelet		N	For making eyelet on belt, etc.		L	S	C	T
	Button sewing			Attaching buttons	△	★	–	C	T
	Appliqué		J	Appliqués	△	★	★	C	T
	Scallop stitch		N	Decorating collar of blouse, edge of handkerchief	△	★	★	C	T
	Smocking stitch		J	Smocking, decorative stitching	△	★	★	C	T
	Patchwork stitch		J	Patchwork stitches, decorative stitching	△	★	★	C	T
	Patchwork stitch		J	Patchwork stitches, decorative stitching	△	★	★	C	T
	Patchwork stitch		J	Patchwork stitches, decorative stitching	△	★	★	C	T
	Fagoting		J	Fagoting, decorative stitching	△	★	★	C	T
	Fagoting		J	Fagoting, decorative stitching	△	★	★	C	T
	Appliqué		N	Decorative	△	★	★	C	T

SELECTION KEY	NAME OF PATTERN	PATTERN	TYPE OF PRESSER FOOT	USE	REVERSE/REINFORCE-MENT STITCHING	STITCH WIDTH ADJUSTMENT	STITCH LENGTH ADJUSTMENT	AUTOMATIC THREAD CUTTING	AUTOMATIC REVERSE/ REINFORCEMENT STITCHING
UTILITY STITCH	Decorative		N	Decorative stitching	△	★	★	C	T
				Decorative stitching	△	★	★	C	T
			J	Decorative stitching for cuffs made from stretch fabrics	△	★	★	C	T
				Decorative stitching for cuffs made from stretch fabrics	△	★	★	C	T
				Decorative stitching	△	★	★	C	T
				Decorative stitching of thin to medium stretch fabrics	△	★	★	C	T
	Heirloom		N	Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
	Satin stitch		N	Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T

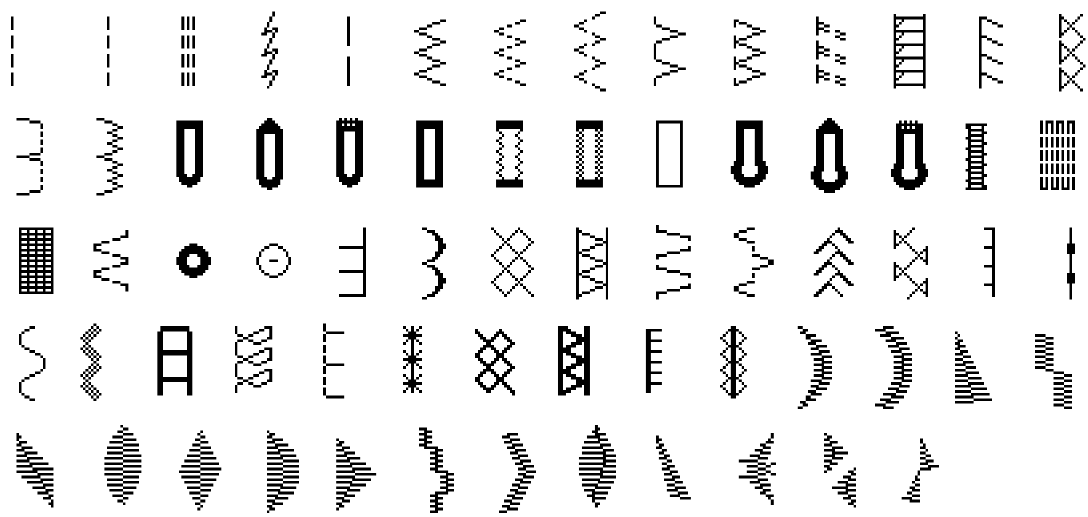
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UTILITY STITCH	Satin stitch		N	Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T
				Decorative hems	△	★	★	C	T

SELECTION KEY	NAME OF PATTERN	TYPE OF PRESSER FOOT	USE	STITCH WIDTH ADJUSTMENT	STITCH LENGTH ADJUSTMENT	AUTOMATIC THREAD CUTTING	AUTOMATIC REVERSE/REINFORCE-MENT STITCHING
EMBROIDERY	ALPHABET		Character sewing	–		C	T
	FRAME PATTERN		Frame pattern	–		C	T
	ONE-POINT PATTERN		Patterns	–		C	T
	MEMORY CARD (SOLD SEPARATELY)		Characters	–		C	T

R : Sews in reverse when the reverse/reinforcement stitch button is pressed.
△ : Three reinforcement stitches will be sewn when the reverse/reinforcement stitch button is pressed.
★ : Adjustable
– : Non-adjustable
L, M, S or L, S:
Pattern size can be changed
L (large)
M (medium)
S (small)
T : If automatic thread cutting and automatic reverse/reinforcement stitching are turned on before you start sewing, pressing just the start/stop button automatically sews reverse stitches before sewing. In addition, pressing the reverse/reinforcement stitch button at the end of the stitching automatically sews reverse stitches, trims the threads and stops the machine.
T : Reinforcement stitches will be sewn automatically at the start of sewing. Press the reverse/reinforcement stitch button to sew reinforcement stitches automatically at the finish of sewing.
C : Programmed automatic thread cutting is available.
C : Automatic thread cutting is available.

PATTERNS (PROGRAMMED IN MACHINE)

Utility stitches



Character embroidering

Sizes: **L** 30 mm (1-3/16”), **M** 15 mm (9/16”), **S** 7.5 mm (1/4”)
(Approximate size)

A B C D E F G H I J K L M N O P Q R S
T U V W X Y Z   a b c d e f g h i j k l m
n o p q r s t u v w x y z
Ä Å Â Æ Ñ Ö Ø Ç Ü ß ä à å â æ ë è é ê ñ ö ò ø i ç ü ù
0 1 2 3 4 5 6 7 8 9   & ? ! . - _ ( ) ' , /

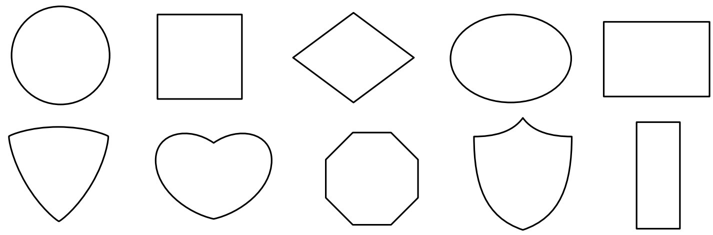
A B C D E F G H I J K L M N O P Q R S
T U V W X Y Z   a b c d e f g h i j k l m
n o p q r s t u v w x y z
Ä Å Â Æ Ñ Ö Ø Ç Ü ß ä à å â æ ë è é ê ñ ö ò ø i ç ü ù
0 1 2 3 4 5 6 7 8 9   & ? ! . - _ ( ) ' , /

0123456789
ABCDEFGHIJKLMNO
PQRSTUVWXYZ

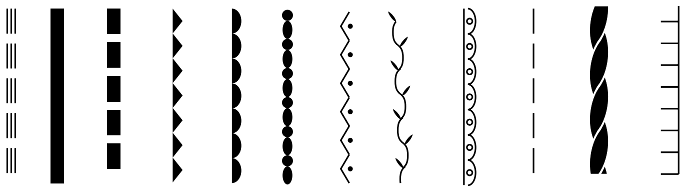
Frame pattern embroidering

Sizes can be enlarged or reduced.

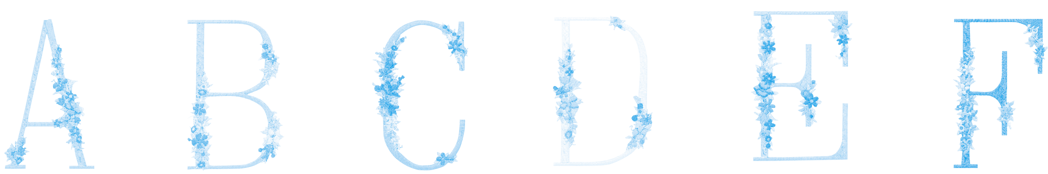
Frames



Stitches



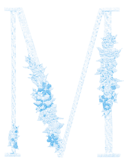
Floral alphabet



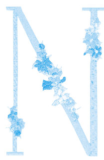
A	B	C	D	E	F
1 017	**1** 017	**1** 017	**1** 017	**1** 017	**1** 017
2 513	**2** 513	**2** 513	**2** 513	**2** 513	**2** 513
3 810	**3** 810	**3** 810	**3** 205	**3** 810	**3** 070
4 070	**4** 205	**4** 205	**4** 810	**4** 070	**4** 810
5 612	**5** 070	**5** 612	**5** 612	**5** 612	**5** 205
6 205	**6** 612	**6** 070	**6** 070	**6** 205	**6** 612



G	H	I	J	K	L
1 017	**1** 017	**1** 017	**1** 017	**1** 017	**1** 017
2 513	**2** 513	**2** 513	**2** 513	**2** 513	**2** 513
3 205	**3** 612	**3** 612	**3** 612	**3** 810	**3** 810
4 612	**4** 810	**4** 810	**4** 810	**4** 612	**4** 205
5 070	**5** 205	**5** 070	**5** 070	**5** 205	**5** 612
6 810	**6** 070	**6** 205	**6** 205	**6** 070	**6** 070



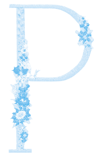
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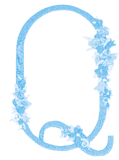
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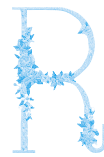
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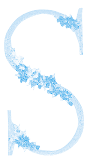
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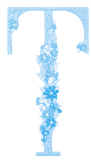
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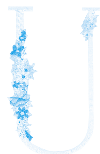
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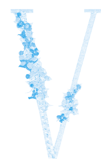
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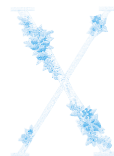
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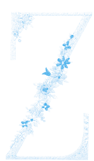
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